THE ECONOMIC DETERMINANTS OF INTERNAL MIGRATION: A CASE STUDY OF SPAIN, 1960 TO 1973

by

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CHAPTER I

INTERNAL MIGRATION IN SPAIN: INTRODUCTION AND DESCRIPTIVE ANALYSIS

Internal migration, which can be defined as the voluntary permanent movement from one geographical location to another, is an ever-present phenomenon in the historical evolution of Spain. Even though this phenomenon is not limited to a certain time-period, its intensity, its characteristics, and the areas in which migratory flows occur, vary from one period to another. Primarily due to the structural transformations of the productive system - the relative loss of importance of agriculture, the higher mechanization of the agrarian sector, and the relative growth of the industrial and service sectors - migratory movements have intensified and have played an important role in determining the geographical location of the country's economic development since the 1940's. From 1940 to 1960, migration from the agricultural to the industrial sectors predominated due to the surplus of workers in agriculture. In this period, migratory movements occurred over short distances, usually from a rural area to an urban area of the same province. From 1960 to the present, particularly from 1960 to 1973, internal migration has increased in volume and in the geographical extension of the areas of out-migration due to the rapid growth of the Spanish economy. During this period, various changes took place in the character of internal migratory movements: the agricultural sector is no longer the focal point of out-migration, a higher proportion of long-distance moves are occurring, and urban to urban movements,

particularly toward the largest urban centers of the country, are an important part of the total volume of movements.

Economic growth from 1960 to 1973 was, however, spatially unbalanced. It occurred in those few areas which were more developed and left the rest of the country in relative stagnation. The result was to heighten an already unbalanced economic situation. Predictably, migratory movements followed the pattern of economic growth, and were directed from the less-favored to the more-favored areas, with the result that there was a high concentration of population and resources in the few developed areas. This situation has caused important social and economic problems. First, due to the strong sense of regionalism, migrants do not integrate easily in the destination areas, with the result that there is a clash of life styles. Second, social and economic inequality results from the unbalanced development of the various regions. Third, the concentration of population and resources in a few developed zones, together with the loss of population in the underdeveloped ones, to the point of desertion, will obstruct national economic growth due to an unacceptable imbalance of regional economic resources. The solution to these problems is of a high priority in Spain's economic policy. Among other things, it demands the identification and quantitative evaluation of the economic determinants of the geographic flows of population. Incomprehensibly, given the importance of migratory movements to this problem, the analysis of the determining factors of internal migration has not received the attention it deserves.[1]

The object of our study is to identify and analyze the determining economic factors of internal migration from 1960 to 1973. The information provided by this analysis will, ideally, improve the decision-making process of social planners in Spain and suggest solutions to the problems caused by the unbalanced distribution of the population and the uneven economic development of the country. Furthermore, we feel that Spain, especially for the period of reference, 1960 to 1973, forms an appropiate framework for the re-examination of those economic hypotheses which underlie the theoretical explanation of the determinants of internal migratory movements.

THE FRAME OF REFERENCE: SPAIN, 1960 to 1973

The geographic mobility of population is a phenomenon that has existed in all countries at all times. However, the characteristics of migratory movements and the reasons for their existence vary, depending on the socioeconomic structure of a country and on the specific historical moment studied. As a result, it is necessary to study those peculiarities which are related to migration in a given country, such as the diversity of areas and their economic development, the diversity of people, the level and distribution of industrialization and urbanization, and the other economic and social conditions of the historical moment of reference.[2]

General Characteristics of Spain

Spain has a geographical extension of 504,685 square kilometers and a population in 1974 of approximately 35 million people. Its

gross national product was 2490 U.S. dollars per capita in 1974. The GNP comes primarily from the industrial and service sectors of the economy, which makes Spain a relatively developed country.[3] The landscape and the climate vary greatly from region to region. This, together with the different languages spoken - Castilian, Catalan, Basque, and Gallego - has resulted in a variety of traditions, customs, and life styles which have made Spain a mosaic of areas, each with strong regional sentiments. This fact affects migratory movements in different ways. From the point of view of the migrant, it will not only influence his decision to migrate, since he will take into account the psychological cost of breaking with a strong social structure, but also his choice of a destination area. Socially, the problems of adjustment in the destination area will make integration costly and will result in the formation of subcultures, established in distinct neighborhoods and united by the place of origin. These factors involve both a private and a social cost which one must take into account when studying the determinants of migration and judging its effectiveness in terms of social costs and benefits.[4]

Another situation which has affected migration in Spain has been the spatial unbalance and concentration of economic activity in just a few areas, giving rise to a contrast between highly developed and underdeveloped areas. The former are predominantly industrial and urbanized, while the latter are primarily agricultural. These differences affect the standards of living of the individuals in the areas, and the resulting diversity between geographical areas is an obvious stimulant to migration. Predictably, the highly developed regions have become the major receptors of

migratory movements.

The time period that we are studying, 1960 to 1973, is characterized by a high growth rate in the Spanish economy. The annual rate of growth of the GNP was approximately 7%. The major reason for this growth was that the economic system, which had been isolated, opened up to the exterior. The result was that the Spanish economy benefited from a favorable economic cycle in Europe, specifically due to the influx of capital, a strong rise in tourism, and the out-migration of Spanish workers who returned capital. Thus, the latter not only decreased the problem of unemployment in Spain by their leaving, but also aided the Spanish economy by sending foreign exchange back to Spain. We must also add to this the important boost given to the Spanish economy by money channeled in from the United States via bilateral defense and trade arrangements. The resulting economic growth produced major transformations in the productive structure, in the spatial allocation of resources and in the employment structure of the country. The distinguishing characteristics were: a) the growth and transformation of a great number of industrial activities, such as the chemical, energy, and machinery sectors; b) the growing importance of the service sector in the productive structure, which reflects the role that tourism played in the economy; c) the increasing concentration of the population in the big cities; d) the relative abandonment of and resulting crisis in traditional agriculture.[5]

On the other hand, alghough the growth of the GDP was high for

the whole period, there were fluctuations in the rate of growth from year to year (See Table 1). These fluctuations affected the volume and intensity of migration, thus indicating that the migratory phenomenon is related to business cycles.

Table 1

Gross Domestic Product
(thousands of millions of pesetas at 1970 prices)

Year	Total	Rate of Growth	G.D.P. (Index: 1962 = 100)
1960	1,254.9	--	--
1961	1,406.0	12.0	--
1962	1,545.1	9.9	100
1963	1,692.8	9.6	109
1964	1,784.6	5.4	115
1965	1,911.2	7.1	124
1966	2,062.8	7.9	133
1967	2,155.9	4.5	139
1968	2,272.2	5.4	147
1969	2,444.9	7.6	158
1970	2,575.3	5.3	167
1971	2,698.4	4.8	175
1972	2,933.4	8.7	190
1973	3,173.6	8.2	205

Source: Contabilidad Nacional de España (Madrid: Instituto Nacional de Estadística, 1960 to 1973).

The effects of this growth on the productive structure are manifest in the distribution of employment by sectors. As can be seen in Tables 2 and 3, the highest rate of growth took place in the industrial and service sectors.

Table 2

Distribution of Employment in Spain, 1960 to 1973

Year	Employment Distribution %		
	Primary	Secondary	Tertiary
1960	39.7	33.0	27.3
1962	38.8	31.3	29.9
1964	35.6	33.3	31.1
1967	32.2	34.0	33.8
1969	30.5	34.2	35.3
1971	28.4	35.4	36.2
1973	25.1	36.1	38.8

Source: Renta Nacional de España y su Distribución Provincial (Bilbao: Banco de Bilbao, 1960, 1962, 1964, 1967, 1969, 1971, 1973).

Table 3

Distribution of Employment in Spain, 1960 to 1973

Year	Employment Distribution %			
	Primary	Secondary	Tertiary	Others
*				
1960	39.8	28.1	27.5	4.6
1970	24.9	36.6	37.2	1.3
**				
1965	32.2	35.5	31.3	---
1966	32.3	36.0	31.7	---
1968	31.2	36.3	32.5	---
1970	29.1	37.3	33.6	---

Source: *Censo de la Población de España (Madrid: Instituto Nacional de Estadística, 1960, 1970). **A. Saez, Población y Actividad Económica en España (Madrid: Siglo XXI, 1975), p. 265.

We can see that by 1973, approximately 75% of the active population was employed in the industrial and service sectors, as opposed to 55% in 1960. The service sector experienced the highest growth rate, absorbing 38.8% of the active population in 1973, as opposed to 27.5% in 1960. The growth of this sector is a result of economic development, and it manifests itself in all countries which are highly developed. However, in the case of Spain, this growth has been more an adaptation to a situation imposed by the influx of foreign capital and tourists, rather than a logical consequence of the agricultural and industrial revolutions, as well as educational advances. As a result, a great proportion of employment in the service sector, generally not very qualified, cannot generate an important magnitude of income without the development of the industrial sector.[6] The service sector requires a high proportion of labor, which is not necessarily specialized, and its economic viability depends on the size of the population. Thus, the development of the service sector is accompanied by a growth of the urban population. In Spain, this resulted in an increase in the urban population as well as in the cities, particularly the big cities. This gave rise to a high concentration of the population in the cities. Tables 4 and 5 illustrate this. As can be seen, in 1950 about 52.07% of the population lived in municipalities greater than 10,000, and in 1960 this figure rose to 56.77%, while in the 1960's the jump was from 56.77% to 66.49%. It is important to point out that in this period the big municipalities had the highest rate of growth. Whereas in 1960 35.72% of the population lived in municipalities greater than 50,000 inhabitants, in 1970 this figure rose to 44.05%. This growth would not have been possible with-

Table 4

Degree of Population Concentration 1950, 1960, 1970

Year	Total Population	% In Capitals	% In Municipalities of more than 50,000 Inhabitants	% In Remaining Parts of Province	Gini Concentration Index
1950	28,117,873	27.9	4.5	67.6	0.41
1960	30,582,936	31.1	6.1	62.8	0.46
1970	33,956,047	36.0	9.4	54.6	0.53

Source: Anuario Económico y Social de España, 1977 (Barcelona: Editorial Planeta, 1977), p. 191.

Table 5

Distribution of the Municipalities (M) according to Population (P) 1950, 1960, 1970

Year	Population Size							
	P 2,001		2,001-10,000		10,001-50,000		P 50,000	
	%M	%P	%M	%P	%M	%P	%M	%P
1950	73.14	16.73	22.47	31.19	3.81	21.40	0.59	30.67
1960	73.50	14.52	21.91	28.70	3.94	21.05	0.66	35.72
1970	73.70	11.00	20.62	22.52	4.79	22.44	0.86	44.05

Source: Anuario Económico y Social de España, 1977 (Barcelona: Planeta, 1977), p. 190.

out the existence of strong migratory flows, and it is indicative of the direction of migratory streams.[7]

During this period, the industrial sector continued a growth which had been initiated in the 1950's, a period in which there was a strong break with traditional agriculture.[8] Although employment increased in this sector - from 28.1 in 1960 to 36.1 in 1973 (See

Tables 2 and 3) - this growth was particularly manifest in those productive activities which use a less specialized labor force, such as construction. In general, the industrial sector grew as a result of the introduction of more advanced productive techniques which were capital intensive and required less but more specialized labor.[9]

The primary sector, particularly agriculture and mining, continued to have a surplus of labor, which caused it to lose population. The working population from 1960 to 1973 decreased from 39.8% to 25.1% of the total labor force.[10] During this period, those who left the sector were not only the salaried workers, though they were of a higher proportion, but the small landlords as well.

MIGRATION IN SPAIN, 1960 TO 1973: TRENDS AND CHARACTERISTICS

Before studying migration, we must first deal with the concept of "migrant". The problem we encounter is that in order to define the concept we must set limits as to the type of individual who moves, the time he remains in the destination area, and the distance he travels from the point of origin. The limits we set will establish a definition of the migrant and, as a result, will determine arbitrarily the volume and the streams of migration. Unless we use surveys, in which case we can establish the ideal definition of "migrant", we are limited to the definition which is pre-established by the data used, which in turn is a reflection of each country's administrative divisions. In Spain, these divisions are the municipality and the province, and migrants are conceptualized according to these units. The two sources of statistics which give information about migrants in Spain are the Censo de la Población de España (Population Cen-

sus) and the Anuario Estadístico de España (Yearbook of Statistics).[11] The Censo, which is carried out every ten years, defines the migrant as that person who has changed his municipality of residence in the current census with respect to the previous one. Since the Censo is taken every ten years, it only includes as migrants that part of the population which is ten years or older. Two types of migrants result, based on the point of origin and destination area: a) the intraprovincial migrant, who changed his municipality of residence within the same province, and b) the interprovincial migrant, who changed both his municipality and province of residence. The Anuario defines the migrant in the same way. The difference, however, is that the Anuario comes out every year, so that the migrant is defined as that person whose municipality and/or province of residence is different from that of the preceding year. Both these sources will be used in this study.

According to the Censo of 1970, the total volume of migrants, both interprovincial and intraprovincial, was 4,215,078, with the rate of migration at 13.85% (See Table 6). As can be seen from Table 6,

Table 6*

Internal Migration in Spain 1960 to 1970

	Total Migrants	Intraprovincial	%	Interprovincial	%
Number	4,215,078	1,703,121	40.41	2,511,957	59.59
Rate of Migration**	13.85	5.60		8.25	

Source: Censo de la Población de España (Madrid: Instituto Nacional de Estadística, 1973).

*We have only taken into account the 50 Spanish provinces, eliminating the African provinces, which are included in the Censo.

**Rate of migrants = $\frac{\text{total migrants}}{\text{population of origin (base year)}}$ x 100. Population in 1960 equals 30,430,698.

of the total volume of migrants, 59.59% were interprovincial and 40.41% were intraprovincial, the rate of migration being 8.25% and 5.60% respectively.

In the Anuario, the total volume of migrants for the period 1962 to 1973 (1962 is the first year in which this source offers information about migrants) was 4,509,347, with the rate of migration at 14.58%. Of this total, 58.33% were interprovincial migrants and 41.67% were intraprovincial, with the rate of migration at 8.50% and 6.08% respectively See Table 7).

Table 7

Internal Migration in Spain 1962 to 1973

	Total Migrants	Intraprovincial	%	Interprovincial	%
Number	4,509,347	1,879,221	41.67	2,630,126	58.33
Rate of Migration*	14.58	6.08		8.50	

Source: Anuario Estadístico de España (Madrid: Instituto Nacional de Estadística, 1962 to 1973).

*Population in 1962 = 30,917,097

From these tables, certain deductions can be made. First, that there is a high volume and intensity of both interprovincial and intraprovincial migration, reflecting the transformations in and growth of the Spanish economy. Second, we see that interprovincial migration slightly predominates over intraprovincial migration, a fact which is indicative of a break with former patterns in migration and of the growing importance of migration at greater distances.[12] Third,

the high volume of both types of migration has resulted in a concentration of the population in certain provinces, those which offer more economic opportunities, and within the provinces, in the more urban and industrialized areas.[13]

Up until this point, we have looked at migration from the period as a whole and have observed its high volume and strong intensity. However, in order to understand the economic determinants of migratory flows, it is also important to analyze the phenomenon dynamically. In other words, to see if migration is affected by the fluctuations which take place in the economy. Due to the fact that migration implies a certain contrast of economic opportunities between the point of origin and the destination area, these fluctuations heighten the contrast during periods of economic expansion, and reduce the contrast during periods of economic depression. In the former period, the volume of migration tends to increase, while in the latter it tends to decrease. As we can see from Table 8 and Graph 1, this is what can be observed in Spain. At the beginning of the period under study, there was a sudden growth in the economy, which, being spatially unbalanced, favored only certain areas. This heightened the contrast between these areas in which economic growth was increased and those areas which were not favored by the economic growth. Both Table 8 and Graph 1 show that the result was an increase in the volume of migration during this time, 1962 to 1964.[14] In the years that followed, and as a logical consequence of the interspatial flow of factors, the inequality of opportunities decreased, resulting in a decrease in the volume of migration. If we observe the variations in the volume of

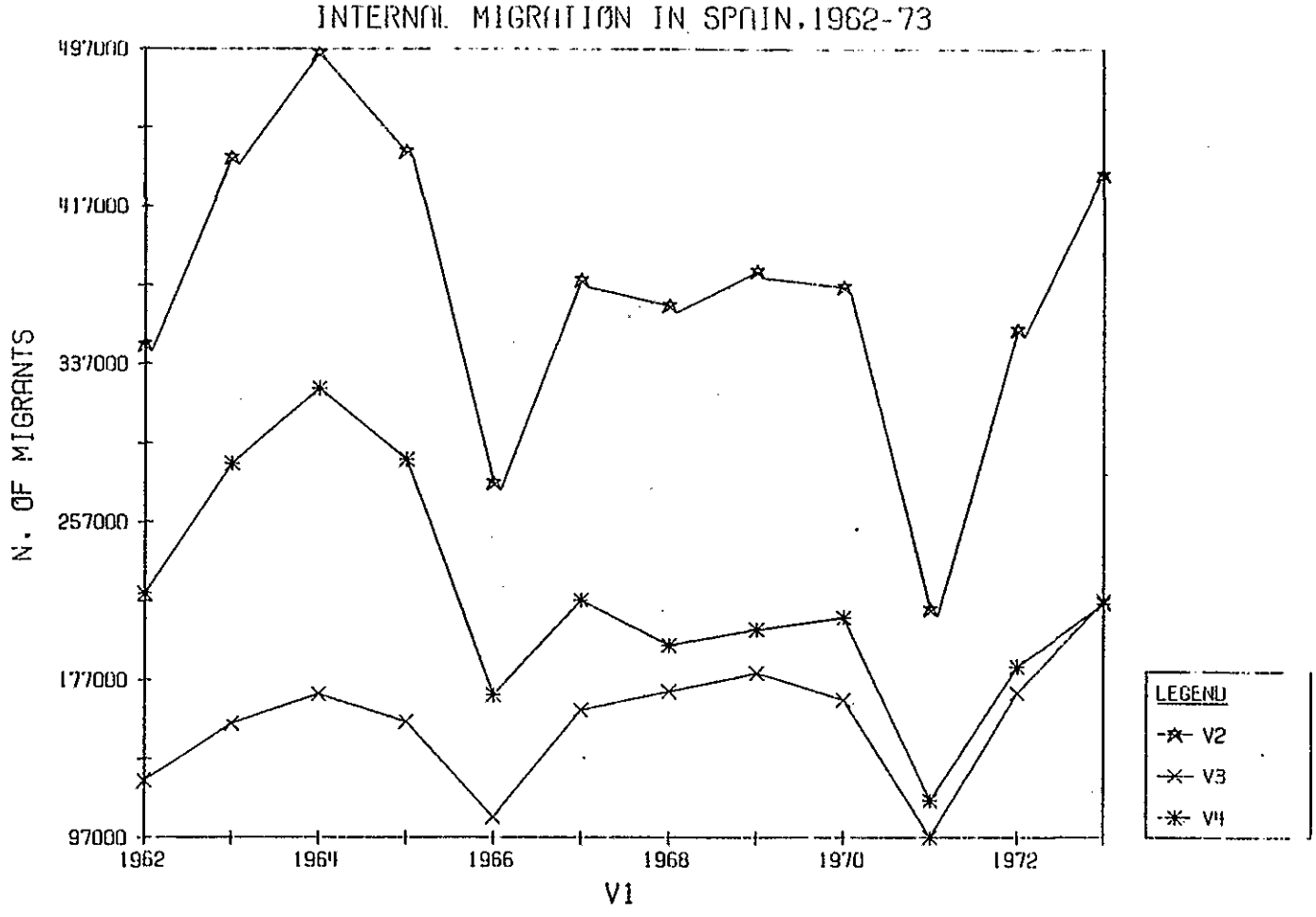
Table 8

Internal Migration in Spain 1962 to 1973

Year	Total Migrants	Intraprovincial Migrants	%	Interprovincial Migrants	%
1962	346,803	125,830	36.28	220,973	63.72
1963	441,295	154,700	35.06	286,595	64.94
1964	494,397	169,932	34.37	324,465	65.63
1965	444,719	155,812	35.04	288,907	64.96
1966	276,715	107,221	38.75	169,494	61.25
1967	379,241	161,599	42.61	217,642	57.39
1968	366,168	171,351	46.80	194,817	53.20
1969	383,755	180,822	47.12	202,933	52.88
1970	375,781	166,959	44.43	208,822	55.57
1971	212,941	97,150	45.62	115,791	54.38
1972	354,456	170,567	48.12	183,889	51.88
1973	433,076	217,278	50.17	215,798	49.83
Total Period	4,509,347	1,879,221	41.67	2,630,126	58.33

Source: Anuario Estadístico de España (Madrid: Instituto Nacional de Estadística, 1962 to 1973).

Graph 1



V1=Years. V2=Total Migrants. V3=Intraprovincial Migration. V4=Interprovincial Migration.

Source: Table 8.

migration from year to year, we can see a significant decrease in the years 1966 and 1971. These two years were years in which the economy was relatively depressed, again illustrating the relationship between economic fluctuations and migration. In 1972 there is an increase in the volume of migration in relation to those years immediately preceding it, and this increase becomes even more significant in 1973. Unlike the increases at the beginning of the period, those in 1972 and 1973 were not related specifically to an expansion in the economy, since during these years the Spanish economy was relatively stagnant. However, 1972 and 1973 were years in which external migration to Europe encountered difficulties, and the drop in this type of migration effected a rise in internal migration. As has been illustrated, economic fluctuations are not solely responsible for the volume of migration but can play a very significant role, particularly when the effect of the business cycle is spatially unbalanced.

Assuming that the total number of migrants is composed of two distinct groups, interprovincial and intraprovincial migrants, we can see that after 1966, and in relative terms, the former decrease while the latter increase. This was probably due to the effects of regional economic policy followed from 1964 on. This policy was based on the creation of growth poles, which were located in backward areas, giving rise to employment opportunities in these areas.[15] As a result, mobility around these poles was increased at the expense of interprovincial migration. This reveals the importance of distance as a factor in migration. The individual will tend to move shorter

distances if economic opportunities are available to him there. The fact that the increase or decrease of intraprovincial and interprovincial migration is not parallel may be due either to the fact that their explanatory factors differ or that the influence of these factors varies with respect to the type of migration, according to the particular moment of the economy. Thus, we not only see that the volume of migration varies with the fluctuations in the economy but also that these fluctuations, in turn, have different effects depending on the type of migrant under study.

Migration in Relation to the Size of the Municipalities of Origin and Destination: 1962 to 1973

The magnitude and type of economic opportunity which the potential migrant can find is related to the size of the municipalities of origin and destination. In general, the greater the size of the municipality, the more possibilities of employment exist, not only because of the bigger size of the labor market, but also because of the larger diversity of occupations. Moreover, in the larger municipalities there exist services which do not exist in smaller cities, such as health, education, recreation, etc. The result is that migrants tend to move from the smaller municipalities to the larger ones. In order to analyze the determinants of migration, it is illustrative to study the relationship between the migratory flows and the size of the municipalities of both origin and destination. As Table 9 and Graph 2 show, migratory streams do not primarily originate from rural areas (municipalities of less than 2000 inhabi-

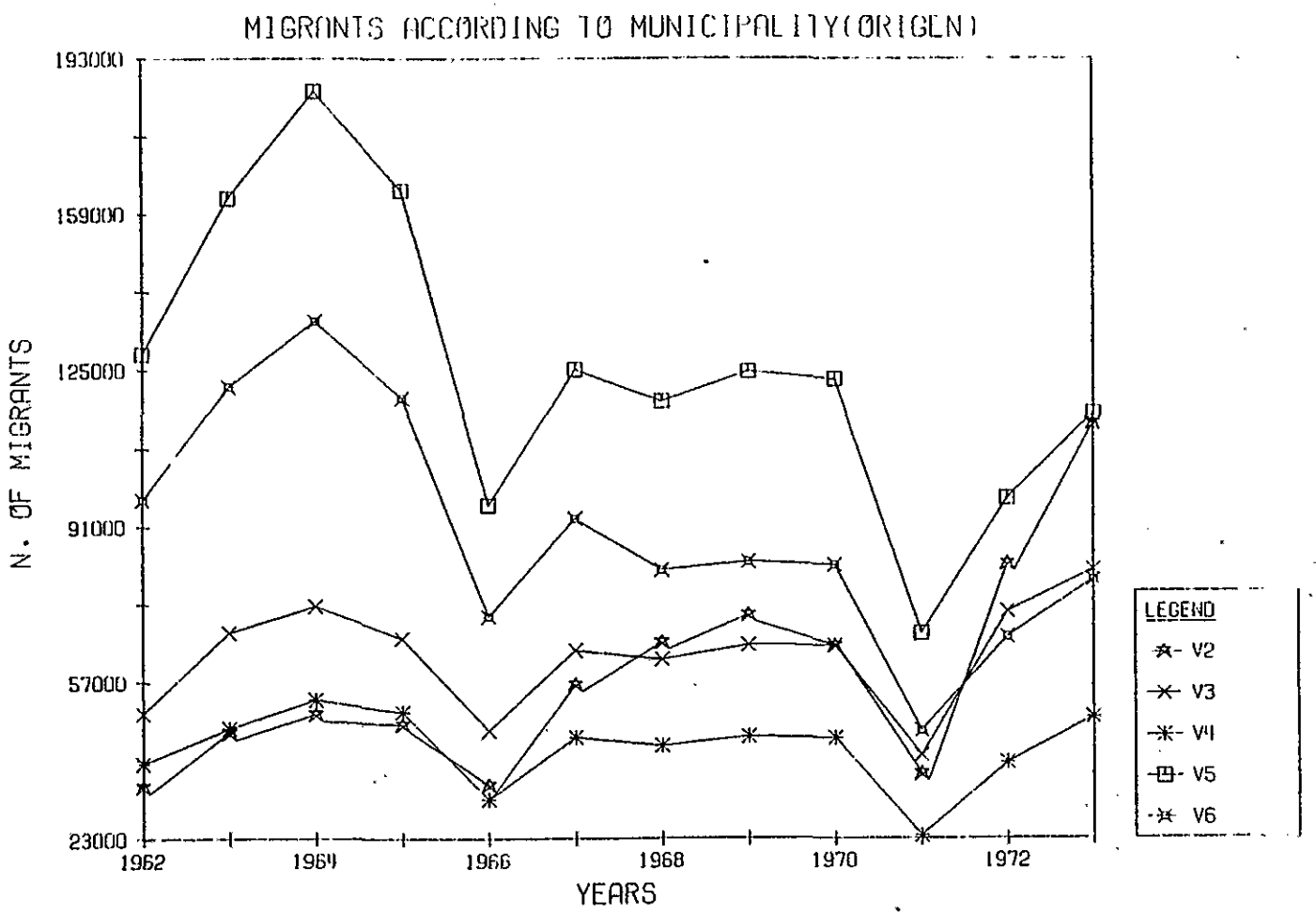
Table 9

Migrants Classified by Size of Municipalities of Origin and Destination 1962 to 1973

Size of Municipality of Origin	Size of Municipality of Destination						
	0<P≤2,000	2,000<P≤10,000	10,000<P≤20,000	20,000<P≤100,000	100,000<P	Total Outflow	%
0<P≤2,000	145,064	227,004	101,686	254,284	349,092	1,077,130	26.63
2,000<P≤10,000	99,548	360,750	166,848	387,584	492,889	1,507,619	33.07
10,000<P≤20,000	25,778	102,793	63,083	131,530	188,914	512,098	11.23
20,000<P≤100,000	37,239	137,093	75,391	204,780	301,364	755,867	16.58
100,000<P	32,539	130,053	106,939	214,183	221,879	705,593	15.49
Total Inflow	340,168	957,693	513,947	1,192,361	1,554,138	4,558,307	100.00
%	7.47	21.01	11.27	26.16	34.09	100.00	

Source: Anuario Estadístico de España (Madrid: Instituto Nacional de Estadística, 1962 to 1973).

Graph 2



V2=Municipalities above 100,000. V3=20,001-100,000. V4=10,001-20,000. V5=2,001-10,000. V6=less than 2,000.

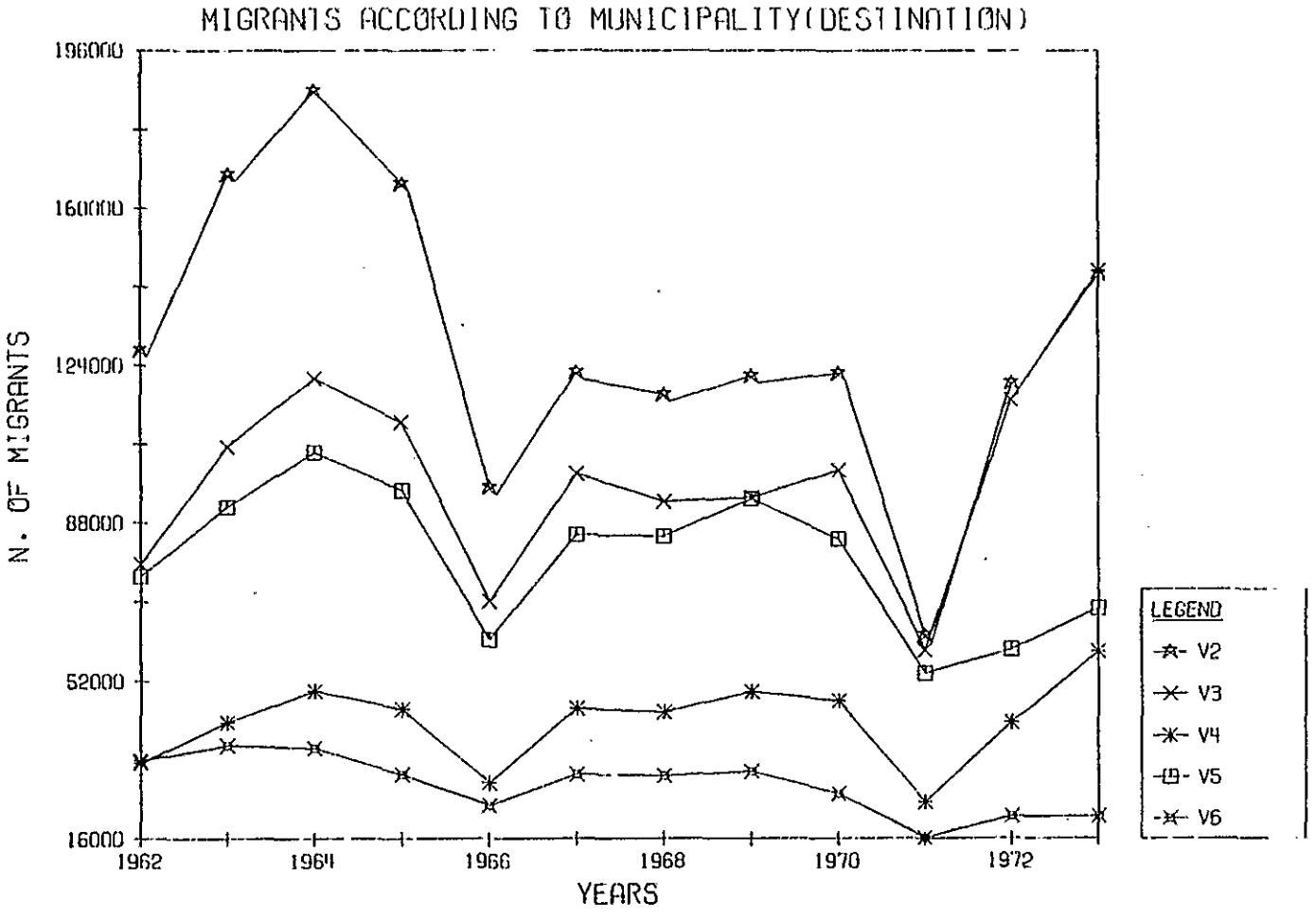
Source: Table 9.

tants. The type of migrant who comes from these areas made up only 23.63% of the total volume of migrants, as opposed to the 33.07% who originated from intermediate municipalities (2001 to 10,000 inhabitants), and the 43.30%, who came from urban municipalities (above 10,000 inhabitants).[16] Of this 43.30%, 11.23% originated in municipalities of 10,001 to 20,000 inhabitants, 16.58% in municipalities of 20,001 to 100,000 inhabitants, and the rest, 15.49%, in municipalities of more than 100,000 inhabitants. What is revealed here is the importance of urban areas as points of origin.

Urban areas, especially the larger urban centers, are even more important as points of destination in this period. From the total number of migrants, 60.25% moved to municipalities of 20,000 or more inhabitants (See Table 9). Moreover, of the sum total of migrants, 34.09% moved to municipalities of 100,000 or more inhabitants. This illustrates the already known fact that the great majority of migrants are attracted by the big municipalities, due to the greater number of economic opportunities that they offer[17] (See Graph 3).

If we relate migration streams according to the size of the point of origin and that of the point of destination, we can see that almost all streams are moving in the same direction (See Table 10). The migrants rarely move to municipalities of a lower population than that of their own municipality of origin. This gives rise to the concentration of the population in the larger municipalities, and to the desertion of the smaller municipalities. There is a clear indication of this when we analyze net migration according to the size of the

Graph 3



V2=Municipalities above 100,000. V3=20,001-100,000. V4=10,001-20,000. V5=2,001-10,000. V6=less than 2,000.

Source: Table 9.

Table 10

Percentage of Migrants Classified by Size of Municipalities of Origin and Destination 1962 to 1973

Size of Municipality of Origin	Size of Municipality of Destination					
	$0<P\leq2000$	$2000<P\leq10,000$	$10,000<P\leq20,000$	$20,000<P\leq100,000$	$100,000<P$	Total Outflow
$0<P\leq2000$	3.18	4.98	2.23	5.58	7.66	23.63
$2000<P\leq10,000$	2.18	7.91	3.66	8.50	10.81	33.07
$10,000<P\leq20,000$	0.57	2.26	1.38	2.89	4.14	11.23
$20,000<P\leq100,000$	0.82	3.01	1.65	4.49	6.61	16.58
$100,000<P$	0.72	2.85	2.35	4.70	4.87	15.49
Total Inflow	7.47	21.01	11.27	26.16	34.09	100.00

Source: Anuario Estadístico de España (Madrid: Instituto Nacional de Estadística, 1962 to 1973).

municipalities. As Table 11 and Graph 4 show, the municipalities with a net in-migration were those of 10,000 or more inhabitants. Within this group, those municipalities with the highest net in-migration were those of a population of 100,000 or more. On the other hand, municipalities of less than 10,000 inhabitants had a net out-migration for the whole period. Again, this illustrates the tendency of the population to concentrate in the larger urban centers, and to desert the smaller municipalities.

If we look at annual migratory flows from the point of origin (see Appendix, Table 1), we can deduce that every year the migrants from the smaller municipalities play an ever-decreasing role with respect to the total number of migrants. On the other hand, the migrants from the larger municipalities play an ever-increasing role. If we look at this phenomenon from the point of destination (see Appendix, Table 2), the municipalities of 20,000 to 100,000 inhabitants increase in importance yearly, while the municipalities of 100,000 or more inhabitants, though still strong centers of attraction, experience a relative decrease in importance with regards to the overall number of migrants. This is due, not to a decrease of migrants entering the largest metropolitan areas, but to a decrease in the number of migrants entering those municipalities of close to 100,000 inhabitants. This indicates that the migrant is less attracted by his own province's capital, and attracted more to the largest capitals.[18] To summarize, although there is some rural to urban migration, urban to urban migration predominates. In ad-

Table 11

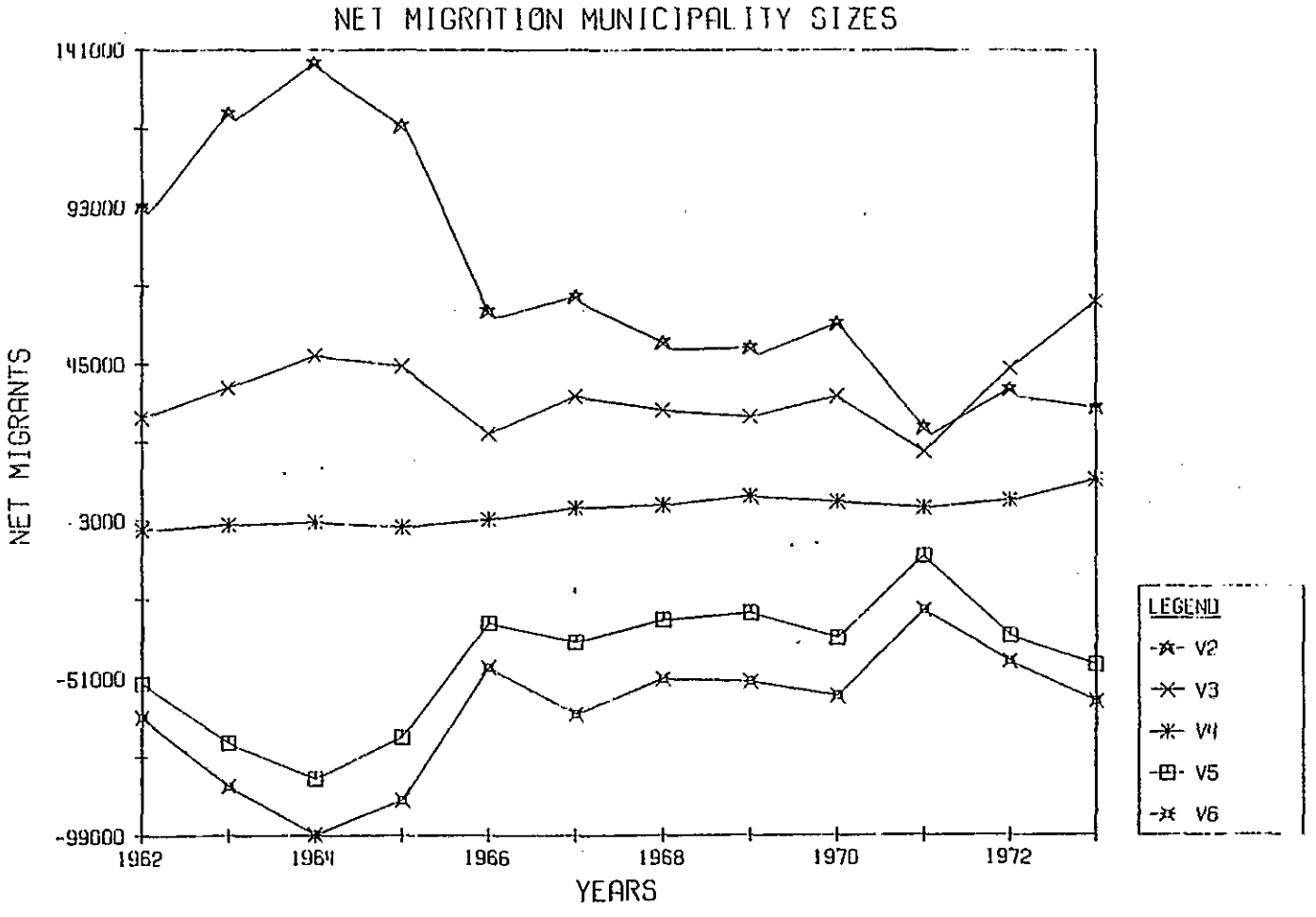
Net Internal Migration by Size of Municipalities*

Year	Sizes (P=Population)				
	P≤2,000	2,000<P≤10,000	10,000<P≤20,000	20,000<P≤100,000	100,000<P
1962	-62,994	-52,624	-5,921	+28,421	+93,118
1963	-84,004	-70,691	-4,376	+37,467	+121,604
1964	-98,760	-81,651	-3,600	+47,426	+136,585
1965	-88,127	-68,907	-4,935	+44,326	+117,643
1966	-47,700	-34,347	-2,736	+23,623	+61,160
1967	-61,872	-39,847	+844	+35,074	+65,801
1968	-51,059	-33,224	+1,737	+30,891	+51,655
1969	-51,953	-31,117	+4,454	+28,761	+49,855
1970	-56,310	-38,661	+2,769	+34,950	+57,252
1971	-30,316	-13,831	+883	+17,859	+25,405
1972	-45,744	-38,060	+3,219	+43,551	+37,034
1973	-58,123	-46,966	+9,511	+64,145	+31,433

Source: Anuario Estadístico de España (Madrid: Instituto Nacional de Estadística, 1962 to 1973).

* + indicates net in-migration; - indicates net out-migration.

Graph 4



V2=Municipalities above 100,000. V3=20,001-100,000. V4=10,001-20,000. V5=2,001-10,000. V6=less than 2,000.

Source: Table 11.

dition, the largest urban centers are the major points of attraction to the migrants, a fact which does not impede individuals from leaving these points, which they do. Finally, regardless of the size of the municipality, all of them experience a certain degree of bi-directionality in their migratory movements. In other words, even though one type of movement, either in-migration or out-migration, predominates, both are present. This fact can be explained by stating that either a) the factors that explain in-migration are different from those that explain out-migration, or b) out-migrants and in-migrants have basically different characteristics from each other.

Characteristics of the Migrants[19]

One thing that has been observed in studies dealing with migration is the selective character of the migrants in relation to the total population.[20] Although few generalizations can be made as regards the specific characteristics of migrants, what one can say is that, in general, migrants represent a dynamic group that reacts to economic opportunities. The decision to migrate is dependent on the expected costs and benefits of the move, which in turn differ with the characteristics of each potential migrant.[21] Thus, it is important to study these characteristics in order to analyze the determinants of migration. Certain characteristics stand out because of their potential effects on the costs and benefits of the move. They are: the stage of the individual's life-cycle (age, marital

status, family characteristics and composition), sex, employment status, type of occupation, and level of education-skill.

The information concerning the characteristics of migrants in Spanish statistics is limited and lacks the sufficient amount of detail for an exhaustive analysis of the relationship between these characteristics and the decision to move. Even though these limitations exist, one can still obtain certain valuable information about migrants in order to interpret the determinants of migratory flows. According to the Anuario, the characteristics of the Spanish migrant were the following. In relation to age, the statistics divided the migrants into four distinct groups: 1) less than 15 years; 2) between 15 and 24 years; 3) between 25 and 64 years; 4) 65 years and above. These categories, however, are not well defined, since, for example, the third group (between 25 and 64 years) comprehends both young and old individuals. As Table 12 shows, the 25-64 year age group predominated in the total volume of migrants for the period 1962 to 1973, as was to be expected. We may assume, however, that a high percentage of this group was made up of relatively young individuals, a fact which together with the high percentage of migrants in the 15-24 year age group, indicates that younger migrants are the most mobile. The less than 15 year age group also had a high percentage of migrants with respect to the total volume, reflecting the mobility of young families. As far as the above 65 year age group is concerned, the percentage of migrants here is predictably low. As a result, despite the relatively inadequate classification

Table 12

Age Composition of Migrants: 1962 to 1973

Year	Total	0-14	%	15-24	%	25-64	%	over 65	%
1962	349,346	105,040	30.07	69,881	20.00	161,785	46.31	12,640	3.62
1963	444,587	130,547	29.36	92,539	20.82	205,545	46.23	15,956	3.59
1964	498,203	144,179	28.94	107,727	21.62	228,490	45.86	17,807	3.58
1965	448,126	128,919	28.77	95,405	21.29	205,831	45.93	17,971	4.01
1966	280,082	84,719	30.25	59,193	21.13	123,992	44.27	12,178	4.35
1967	383,259	114,911	29.98	80,974	21.13	171,103	44.64	16,271	4.25
1968	370,523	110,633	29.86	76,533	20.66	166,925	45.05	16,432	4.43
1969	389,908	117,725	30.19	79,742	20.45	174,995	44.88	17,446	4.48
1970	380,351	114,291	30.05	79,336	20.86	168,996	44.43	17,728	4.64
1971	216,010	69,069	31.97	42,987	19.90	92,748	42.94	11,206	5.19
1972	358,993	110,122	30.67	73,698	20.53	157,090	43.76	18,083	5.04
1973	438,919	135,447	30.86	87,760	19.99	194,919	44.41	20,793	4.74
Total	4,558,307	1,365,602	29.96	945,775	20.75	2,052,419	45.02	194,521	4.27

Source: Anuario Estadístico de España (Madrid: Instituto Nacional de Estadística, 1962 to 1973).

of these age groups, we can infer from them that the younger individuals are those with a higher level of mobility, a fact which is also confirmed by the Censo data.[22]

With regards to the marital status of the migrants, single migrants were more mobile than married ones, the average percentage being 52.65% and 43.47% respectively during the entire period (See Table 13).

Table 13

Migrants Classified by Marital Status: 1962 to 1973

Year	Single		Married		Widowed	
	Number	%	Number	%	Number	%
1962	188,176	53.87	147,373	42.18	13,797	3.95
1963	240,461	54.09	186,923	42.04	17,203	3.87
1964	266,699	53.53	212,709	42.70	18,795	3.77
1965	237,992	53.11	191,850	42.81	18,284	4.08
1966	150,433	53.71	118,395	42.27	11,254	4.02
1967	201,248	52.51	167,421	43.68	14,590	3.81
1968	191,974	51.81	164,336	44.35	14,213	3.84
1969	202,496	51.93	172,332	44.20	15,080	3.87
1970	199,477	52.45	166,091	43.67	14,783	3.88
1971	114,571	53.04	92,724	42.93	8,715	4.03
1972	183,231	51.04	161,608	45.02	14,154	3.94
1973	223,008	50.81	199,838	45.53	16,073	3.66
Total	2,399,758	52.65	1,981,600	43.47	176,941	3.88

Source: Anuario Estadístico de España (Madrid: Instituto Nacional de Estadística, 1962 to 1973).

The fact that single migrants were more mobile than married ones was more noticeable at the beginning of the period, indicating that economic barriers were increasingly less important in the dis-

placement of families. This may also be due to the increasing importance of education for the children, who would benefit from a move to an area in which more educational opportunities were available. Another implication might be that the psychic cost of migration was decreasing.

Concerning the sex of the migrants, there is no clear predominance of male to female or vice versa (See Table 14).

Table 14

Percentage of Male and Female Migrants: 1962 to 1973

Year	Male	Female
1962	53.40	46.60
1963	53.47	46.53
1964	53.26	46.74
1965	53.65	47.35
1966	52.54	47.46
1967	51.86	48.14
1968	51.45	48.55
1969	51.48	48.52
1970	51.46	48.54
1971	51.70	48.30
1972	51.64	48.36
1973	51.52	48.48
Total	52.25	47.75

Source: Anuario Estadístico de España (Madrid: Instituto Nacional de Estadística, 1962 to 1973).

During the period, the average percentage of male migrants was 52.25%, while that of women was 47.75%.[23] It would be interesting to see if women migrants are predominantly married or single, since in the for-

mer case, the women would generally be secondary migrants, while in the latter they would be the ones to make the decision to move. However, the statistics do not give information as to the marital status of women migrants. Annually, there is an increase in the percentage of women who migrate. This may be indicative of the growing importance of women in the labor market, as revealed by the following statistics: in 1960, women made up 13.49% (Censo), while in 1970, they made up 17.33% of the total labor force (Encuesta de la Población Activa).[24]

Concerning the employment status of migrants, the Anuario divides them into two groups, active and inactive.[25] The first designation refers to those individuals who are currently not employed, without distinguishing between those who are unemployed members of the labor force and those who are not members, such as children, students, women who do not work, and retired workers. As a result of this classification and contrary to what was expected, the percentage of inactive migrants with respect to the total volume of migrants is greater than that of the active ones (See Table 15). However, these percentages must be interpreted with caution, since they do not imply a higher rate of mobility in the inactive population. The majority of inactive migrants are, in fact, secondary migrants - individuals of less than 15 and more than 65 years of age, students who do not work, and wives who are not in the labor force. In other words, they influence the decision made by the principal migrant, but he is the one who makes the final decision, thus affecting not only himself, but those who must move with him. It must be kept in mind,

Table 15

Percentage of Active and Inactive Migrants: 1962 to 1973

Year	Active	Inactive
1962	39.35	60.65
1963	39.70	60.30
1964	39.87	60.13
1965	38.89	61.11
1966	38.31	61.69
1967	37.32	62.68
1968	35.94	64.06
1969	35.74	64.26
1970	35.72	64.28
1971	33.99	66.01
1972	35.22	64.78
1973	35.29	64.71
Total	36.94	63.06

Source: Anuario Estadístico de España (Madrid: Instituto Nacional de Estadística, 1962 to 1973).

however, that the unemployed members of the labor force, also part of the inactive population, are primary migrants and, unfortunately, we cannot tell what percentage of the inactive migrants they make up. In any case, independently of the statistics' seeming implication, the active population is more mobile than the inactive population.

Because a large number of the inactive migrants are actually secondary migrants, it is more illuminating to analyze the active group. This group is divided into types of occupations. Since the classifications changed in 1969, we have divided the whole period into two groups: 1962 to 1968, and 1969 to 1973. In the first period, the per-

centages of the following types of occupations in relation to the total volume of active migrants were: Managers and High Positions: 1.44%; Professionals, Technicians, and related: 5.97%; Administrative Employees and Clerks: 12.3%; Domestic Servants and Subordinates: 5.22%; Skilled Laborers: 38.40%; Unskilled Laborers: 36.66% (See Table 16. For actual volumes see Appendix, Table 3).

Table 16

Occupational Classification of Active Migrants by Percentage 1962 to 1968

Occupations	Years							
	1962	1963	1964	1965	1966	1967	1968	1962-1968
Managers/ High Positions	1.87	1.47	1.43	1.35	1.33	1.29	1.31	1.44
Professionals/ Technicians	5.49	5.89	5.15	4.73	7.44	7.37	6.70	5.97
Administrative Employees, Clerks	9.73	11.40	11.63	12.01	12.50	13.82	15.84	12.31
Domestic Servants, Subordinates	4.72	4.57	4.70	4.97	5.62	6.07	6.49	5.22
Skilled Laborers	39.91	38.80	38.31	38.75	35.57	36.93	39.86	38.40
Unskilled Laborers	38.28	37.87	38.78	38.19	37.54	34.52	29.80	36.66

Source: Anuario Estadístico de España (Madrid: Instituto Nacional de Estadística, 1962 to 1968).

In the second period, the composition of migrants by type of occupation was: Managers, Professionals, and Technicians: 7.37%; Administrative Employees: 8.77%; Merchants: 4.62%; Domestic Servants and Subordinates: 7.45%; Farmers, Fishermen: 8.54%; Industrial Workers and Unskilled Workers: 58.13% (See Table 17. For actual volumes

see Appendix, Table 4).

Table 17

Occupational Classification of Active Migrants by Percentage 1969 to 1973

Occupations	Years					
	1969	1970	1971	1972	1973	1969-1973
Managers, Professionals, Technicians	6.65	6.57	7.18	7.55	8.67	7.37
Administrative Employees	8.28	8.56	7.38	8.53	10.26	8.77
Merchants	4.78	4.75	4.09	4.39	4.82	4.62
Domestic Servants	6.98	6.91	7.38	7.79	8.12	7.45
Farmers, Fishermen	9.72	9.07	9.58	8.12	6.85	8.54
Industrial Workers (Unskilled Workers, Non-agricultural)	58.72	59.43	57.20	57.97	57.02	58.13
Others (not specified)	4.87	4.71	7.19	5.65	4.26	5.11

Source: Anuario Estadístico de España (Madrid: Instituto Nacional de Estadística, 1969 to 1973).

Despite the difficulty encountered in the classification of occupations, we can generalize concerning those who do migrate. We see that qualified workers predominate slightly over unskilled workers. This reveals the possible effect of education on the level of mobility. It would be interesting to relate the distance moved to the level of education of the migrant, but this information is not available to us. We

can also observe that migrants are primarily workers attached to the industrial and service sectors, and not to the agricultural sector.

INTERPROVINCIAL MIGRATION

Having examined the general trends and characteristics of internal migration in general, we will now concern ourselves primarily with interprovincial migration, since the province will be the spatial unit of analysis in our empirical model.[26] Given that some provinces contribute more heavily to out-migration, while others tend toward in-migration, and given that there are certain trends in the direction of migratory streams, we will study the relationship between the economic characteristics of these provinces and the intensity and direction of the migratory flows. The pressure exercised by migratory streams, out-migration and/or in-migration, in the different provinces, can be measured by means of the rates of out-migration and in-migration, respectively.[27] The fundamental advantage of the concept of a migration rate is that, unlike the concepts of gross out-migration and gross in-migration, it reflects the probability of migration and normalizes migration flows, thus making them independent of each province's population size. Since the population sizes of the 50 provinces in Spain vary greatly (the most populous province had 2,877,966 inhabitants in 1960, the least populous had 138,934 in the same year[28]), this concept allows migratory flows to originate and terminate as random population variables.[29]

By analyzing the rates of out-migration provincially, one can ob-

serve that a great number of provinces were strongly affected by the outflow of individuals (See Table 18).

Table 18

Provincial Rates of Out-Migration 1962 to 1973

Rates	Number of Provinces	% of Out-Migrants with respect to Total
more than 16%	12	42.11
from 13 to 16%	7	12.71
from 9 to 12%	7	9.53
from 5 to 8%	13	21.98
from 0 to 4%	11	13.67

Source: Anuario Estadístico de España (Madrid: Instituto Nacional de Estadística, 1962 to 1973).

From the total number of provinces, 39 had rates of out-migration greater than 4%, while only 11 had lower rates. Although the phenomenon of out-migration is quite extensive geographically during this period, there is great variability among the provinces in the intensity of its pressure (See Table 19). As Table 19 shows, there were altogether 19 provinces with very high rates of out-migration. Twelve of these had the highest pressure, with rates exceeding 16% (Teruel, Cuenca, Soria, Caceres, Albacete, Badajoz, Palencia, Jaen, Cordoba, Guadalajara, Ciudad Real, Granada). The other seven provinces had the next highest pressure of out-migration, with rates between 13 and 16% (Huesca, Segovia, Zamora, Salamanca, Almeria, Toledo, Burgos). Almost 55% of the total number of migrants proceeded from the 19 provinces with the highest rates of out-migration.

Table 19

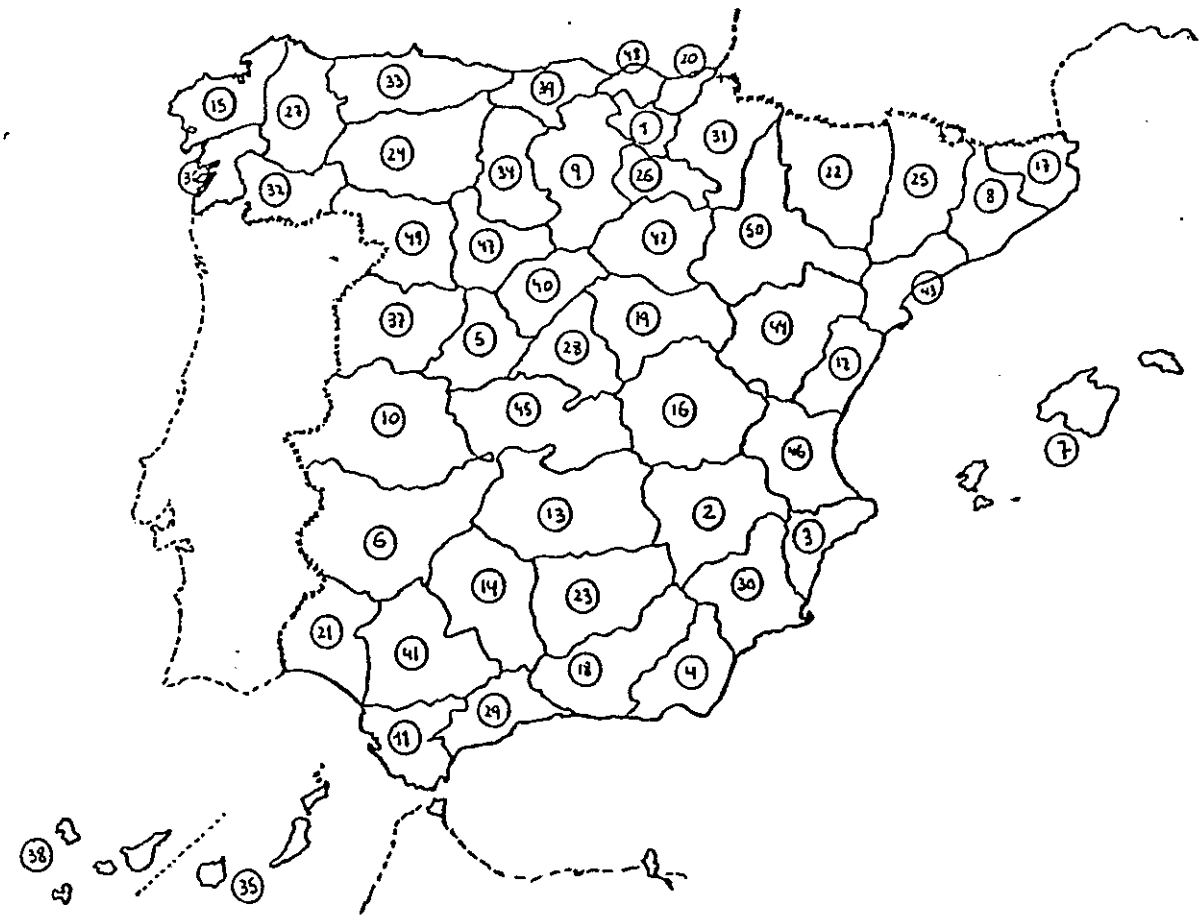
Provincial Rates of Out-Migration, 1962 to 1973

Provinces	Rate	Provinces	Rate	Provinces	Rate
Alava	9.37	Granada	17.02	Palmas (las)	1.93
Albacete	19.57	Guadalajara	18.58	Pontevedra	2.47
Alicante	3.40	Guipuzcoa	7.55	Salamanca	14.17
Almeria	13.46	Huelva	10.21	Santa Cruz	1.85
Avila	12.44	Huesca	14.32	Santander	4.86
Badajoz	19.28	Jaen	19.84	Segovia	14.71
Baleares	2.12	Leon	9.22	Sevilla	8.70
Barcelona	3.53	Lerida	12.29	Soria	22.37
Burgos	13.81	Logrono	9.68	Tarragona	8.56
Caceres	10.86	Lugo	8.21	Teruel	25.92
Cadiz	7.74	Madrid	2.65	Toledo	13.71
Castellon	7.08	Malaga	7.93	Valencia	3.40
Ciudad Real	18.57	Murcia	5.68	Valladolid	9.28
Cordoba	19.06	Navarra	5.78	Vizcaya	5.86
Coruna	2.64	Orense	5.20	Zamora	14.97
Cuenca	24.25	Oviedo	2.67	Zaragoza	6.63
Gerona	7.20	Palencia	19.38		
SPAIN	8.51				

Source: Anuario Estadístico de España (Madrid: Instituto Nacional de Estadística, 1962 to 1973).

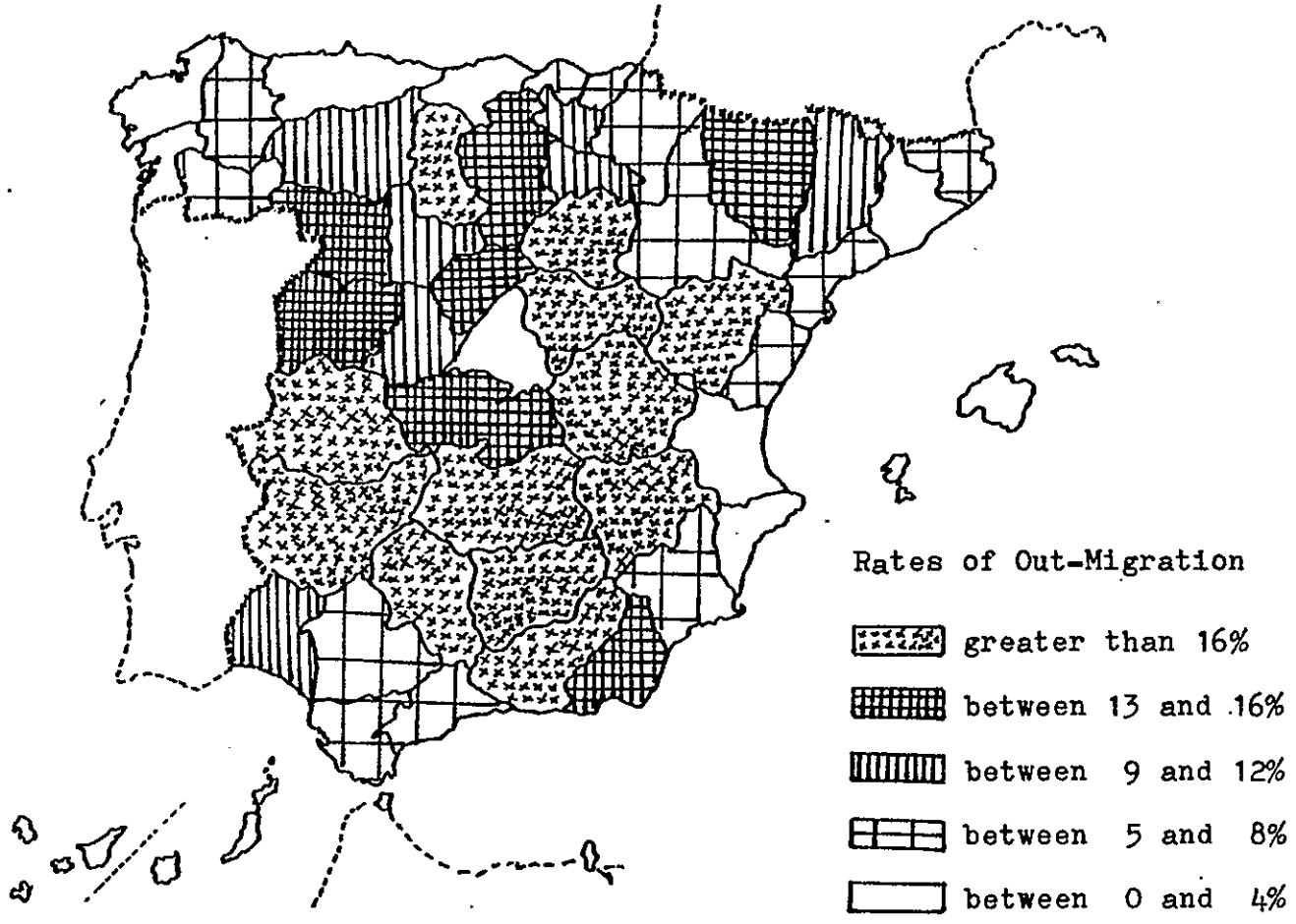
The following maps identify the provinces by name (Map 1) and indicate the intensity of out-migration for each province (Map 2). As can be seen from these maps, the 19 provinces with the highest rate of out-migration are located primarily in the south and in the east-central part of the peninsula, with the exception of Palencia, located in the north-central portion of Spain. All are inland provinces, with the exception of Granada, which, despite its small coast, is

Map 1: Provincial Division of Spain



1. Alava
2. Albacete
3. Alicante
4. Almeria
5. Avila
6. Badajoz
7. Baleares
8. Barcelona
9. Burgos
10. Caceres
11. Cadiz
12. Castellon
13. Ciudad Real
14. Cordoba
15. Coruna
16. Cuenca
17. Gerona
18. Granada
19. Guadalajara
20. Guipuzcoa
21. Huelva
22. Huesca
23. Jaen
24. Leon
25. Lerida
26. Logrono
27. Lugo
28. Madrid
29. Malaga
30. Murcia
31. Navarra
32. Orense
33. Oviedo
34. Palencia
35. Palmas (las)
36. Pontevedra
37. Salamanca
38. Santa Cruz
39. Santander
40. Segovia
41. Sevilla
42. Soria
43. Tarragona
44. Teruel
45. Toledo
46. Valencia
47. Valladolid
48. Vizcaya
49. Zamora
50. Zaragoza

Map 2: Provinces of Out-Migration 1962 to 1973.

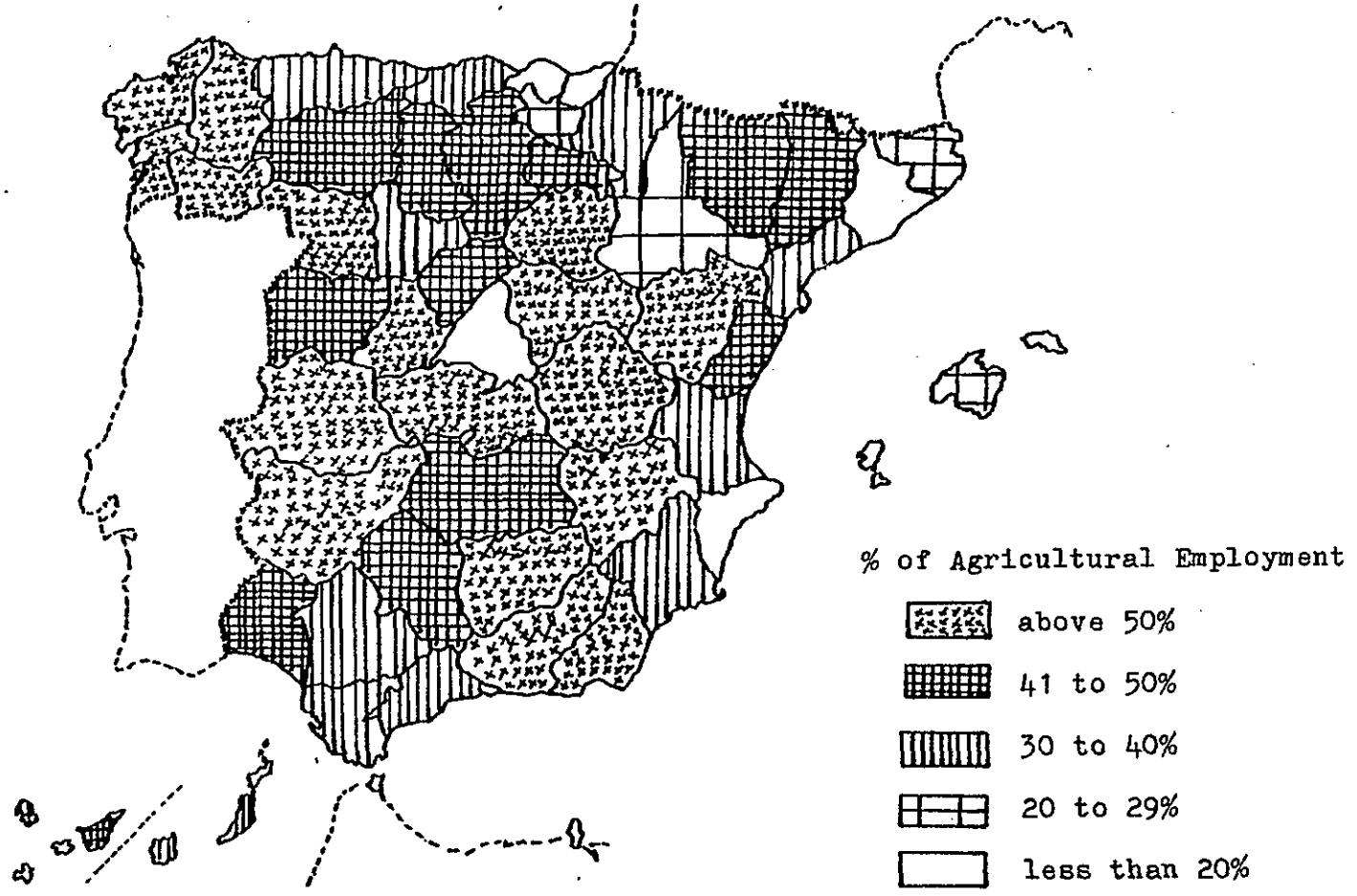


Source: Table 19

not structurally a coastal province. These provinces are relatively homogeneous as regards their economic characteristics. They are predominantly agricultural. The twelve provinces with the highest rates of out-migration had an average of 53.18% of their active population employed in the agricultural sector for the period, 1962 to 1973, and the other seven provinces had an average of 50.34%. The national average was 33.11%, indicating that these 19 provinces were highly agricultural. Agricultural employment in all the provinces of Spain can be seen in Map 3. The average yearly earnings for the period 1962 to 1973 in the 19 provinces mentioned were less than those for the national average (68.21 in thousands of pesetas for the twelve provinces; 70.64 for the other seven; 83.50 for the national average). With regards to their level of economic development, all of these provinces can be considered relatively underdeveloped, except for Burgos and Huesca, which have an intermediate level of development. Their per-capita income for the period under consideration, 1962 to 1973, was very low in the provincial income rank (34,423 pesetas for the twelve provinces and 39,143 for the seven, as opposed to the national average, which was 48,681). This relative underdevelopment is also revealed by the following social indicators (See Table 20). As this table shows, there is a direct relationship between the standard of living and the rate of out-migration. The higher the former, the lower the latter.

Concerning their level of urban development, the percentage of urban population in these 19 provinces was generally inferior to the national average. Only two of the 19, Cordoba and Granada, had cities

Map 3: Distribution of Agricultural Employment 1960 to 1973



Source: Appendix, Table 7

Table 20

Social Indicators

Provinces	# of Specialized Doctors per 100,000 Inhabitants	% of Heads of Families with Intermediate or Higher Level of Education	% of Housing with Bath or Shower
12 provinces with highest rate of out-migration	30.33	4.0	15
7 provinces with next highest rate	34.00	5.0	20
National Average	59.00	6.0	37

Source: III Plan de Desarrollo Económico y Social, Desarrollo Regional (Madrid: Presidencia del Gobierno, 1972), pp. 114-15.

of a population of more than 100,000 inhabitants in 1960. Finally, with respect to the remaining 31 provinces which had rates of out-migration lower than 13%, only three can be considered underdeveloped: Avila, Lugo, and Orense. The others were either highly developed economically or relatively developed.

By examining the rates of in-migration for each province, we can see the strong power of attraction of a small number of provinces (See Table 21). As Table 21 shows, from the total number of provinces, only four had rates of in-migration exceeding 16% (Alava, Barcelona, Vizcaya, Tarragona). Six provinces had rates between 12 and 16% (Guipuzcoa, Gerona, Madrid, Valencia, Alicante, Castellon).

Table 21

Provincial Rates of In-Migration, 1962 to 1973

Rates	Number of Provinces	% of Out-Migrants with respect to Total
more than 16%	4	41.73
from 12 to 16%	6	33.01
from 8 to 12%	4	6.65
from 4 to 8%	7	4.31
from 0 to 4%	29	14.30

Source: Anuario Estadístico de España (Madrid: Instituto Nacional de Estadística, 1962 to 1973).

Moreover, we see that 29 provinces had rates of in-migration less than 4% (See Table 22 for the specific rates of each province). It is important to note that the ten provinces with the highest rates of in-migration absorbed approximately 75% of the total number of migrants. This is an indication of the polarization of migration flows in Spain to a select group of provinces. Map 4 illustrates the intensity of in-migration for all the provinces. As can be seen from Map 4, the ten provinces are located in the northern coastal region bordering with France (the Basque Country), in the eastern Mediterranean coastal region, and one, Madrid, is isolated in the center of the peninsula. It is important to note that, with the exception of Alava and Madrid, the other eight provinces are coastal. This reveals that economic development in Spain has favored the peripheral areas, in detriment to the inland provinces, due both to the fact that the provinces on the periphery possess more natural resources, and were more favorably located for economic growth.

Table 22

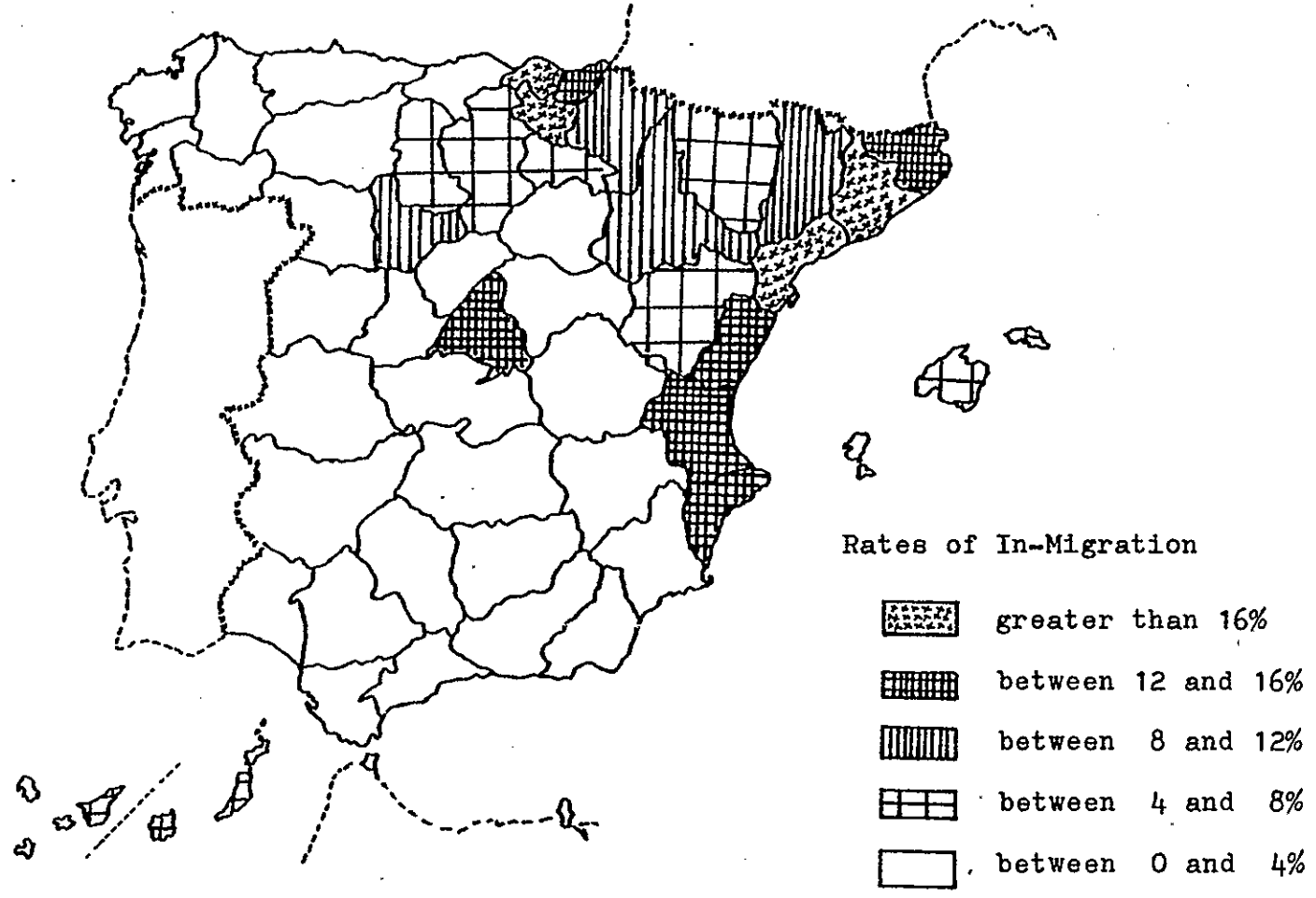
Provincial Rates of In-Migration, 1962 to 1973

Provinces	Rate	Provinces	Rate	Provinces	Rate
Alava	31.72	Granada	2.27	Palmas (las)	4.69
Albacete	2.39	Guadalajara	3.47	Pontevedra	1.41
Alicante	12.20	Guipuzcoa	15.83	Salamanca	2.99
Almeria	2.98	Huelva	1.46	Santa Cruz	2.52
Avila	2.52	Huesca	6.66	Santander	3.55
Badajoz	1.95	Jaen	1.83	Segovia	2.09
Baleares	4.41	Leon	2.35	Sevilla	2.83
Barcelona	26.75	Lerida	8.42	Soria	3.26
Burgos	4.19	Logrono	7.45	Tarragona	16.95
Caceres	3.18	Lugo	1.37	Teruel	5.24
Cadiz	1.67	Madrid	14.30	Toledo	2.71
Castellon	12.07	Malaga	2.08	Valencia	13.95
Ciudad Real	2.54	Murcia	2.68	Valladolid	10.37
Cordoba	3.19	Navarra	9.86	Vizcaya	22.54
Coruna	1.68	Orense	1.46	Zamora	1.94
Cuenca	2.88	Oviedo	1.87	Zaragoza	10.00
Gerona	15.31	Palencia	4.94		
SPAIN	8.51				

Source: Anuario Estadístico de España (Madrid: Instituto Nacional de Estadística, 1962 to 1973).

The economic characteristics of the provinces with the highest rates of in-migration are not as homogeneous as those found in the provinces with high rates of out-migration. The distribution of employment in the former provinces for the period 1962 to 1973 indicates that all of them, with the exception of Castellon and Tarragona (in which there existed a relatively significant level of agricultural employment), were above the national average in the percen-

Map 4: Provinces of In-Migration 1962 to 1973

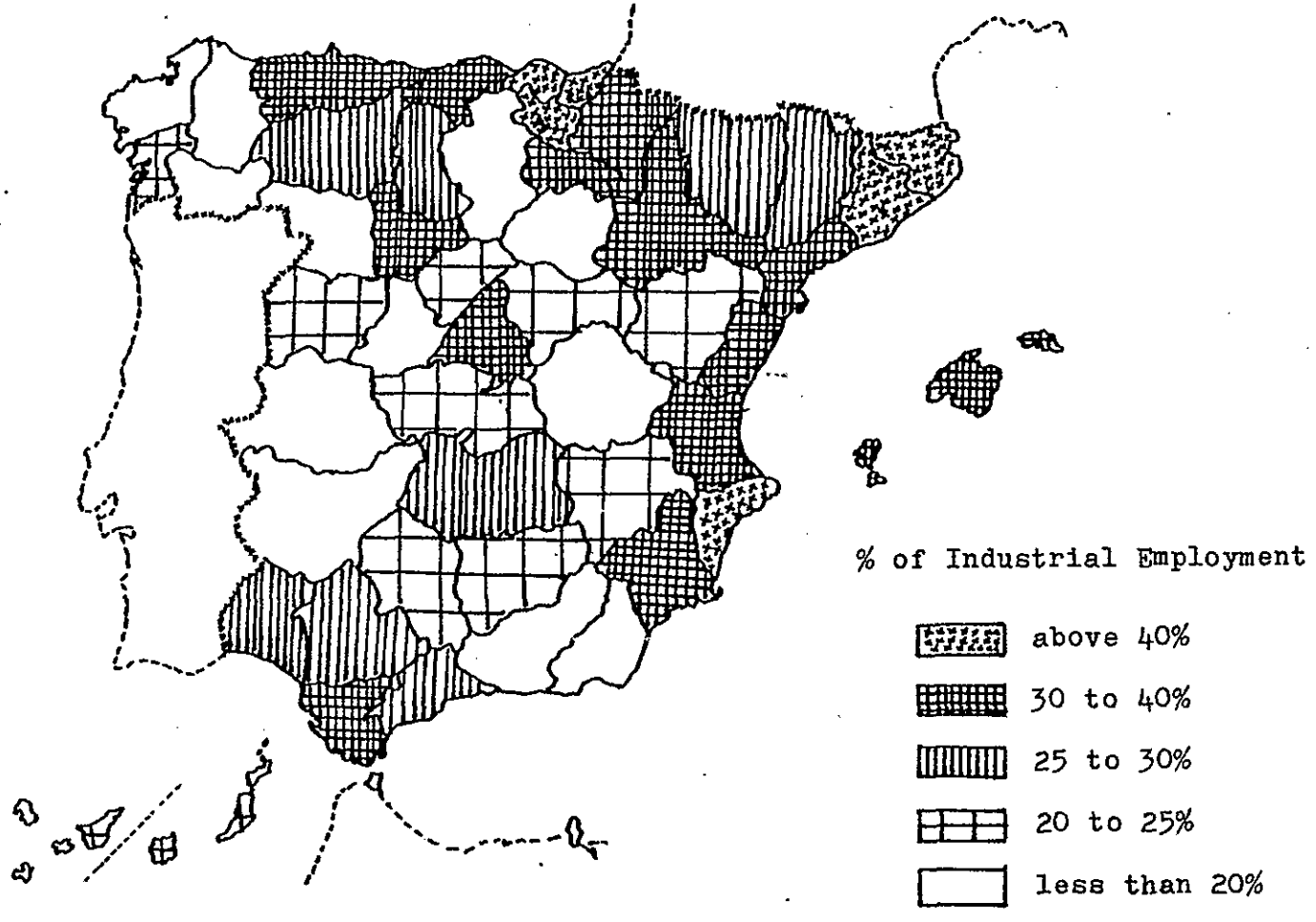


Source: Table 22

tage of active population employed in the industrial sector. Those provinces in which this percentage was exceptional were Barcelona (56.37%), Guipuzcoa (55.53%), Vizcaya (53.89%), and Alava (51.53%). Industrial employment in the 50 Spanish provinces can be seen in Map 5. In general, the ten provinces with high rates of in-migration also had a large proportion of the active population employed in the service sector.

As far as the productive structure of these provinces is concerned, some were predominantly manufacturing and metalurgical (Barcelona, Vizcaya, Guipuzcoa, and Alava), others had a strong service sector, as well as a relatively well-developed manufacturing sector (Madrid, Alicante, Gerona, and Valencia). Certain provinces benefited from the high level of tourism during the period (Madrid, Alicante, Gerona, Tarragona, and Castellon), a factor which influenced the creation and growth of economic opportunities in these areas. The average per capita income in these ten provinces, with the exception of Castellon and Alicante (with average per capita incomes in pesetas of 48,484 and 44, 838, respectively), was 64,603, well above the national average of 48,681. The following social indicators reveal the relatively high standard of living in these provinces (See Table 23). As the figures in Table 23 show, there is a direct relationship between the standard of living and the rate of in-migration. The higher the former, the lower the latter. An indication of the high level of employment opportunities in these provinces was the share of industrial employment in six of the ten provinces (Barcelona, 19.38; Madrid, 12.11;

Map 5: Distribution of Industrial Employment 1960 to 1973



Source: Appendix, Table 7

Table 23

Social Indicators

Provinces	# of Specialized Doctors per 100,000 Inhabitants	% of Heads of Families with Intermediate or Higher Level of Education	% of Housing with Bath or Shower
10 provinces with highest rate of in-migration	66.4	8.0	49.8
National Average	59.0	6.0	37.0

Source: III Plan de Desarrollo Económico y Social, Desarrollo Regional (Madrid: Presidencia del Gobierno, 1972), pp. 114-15.

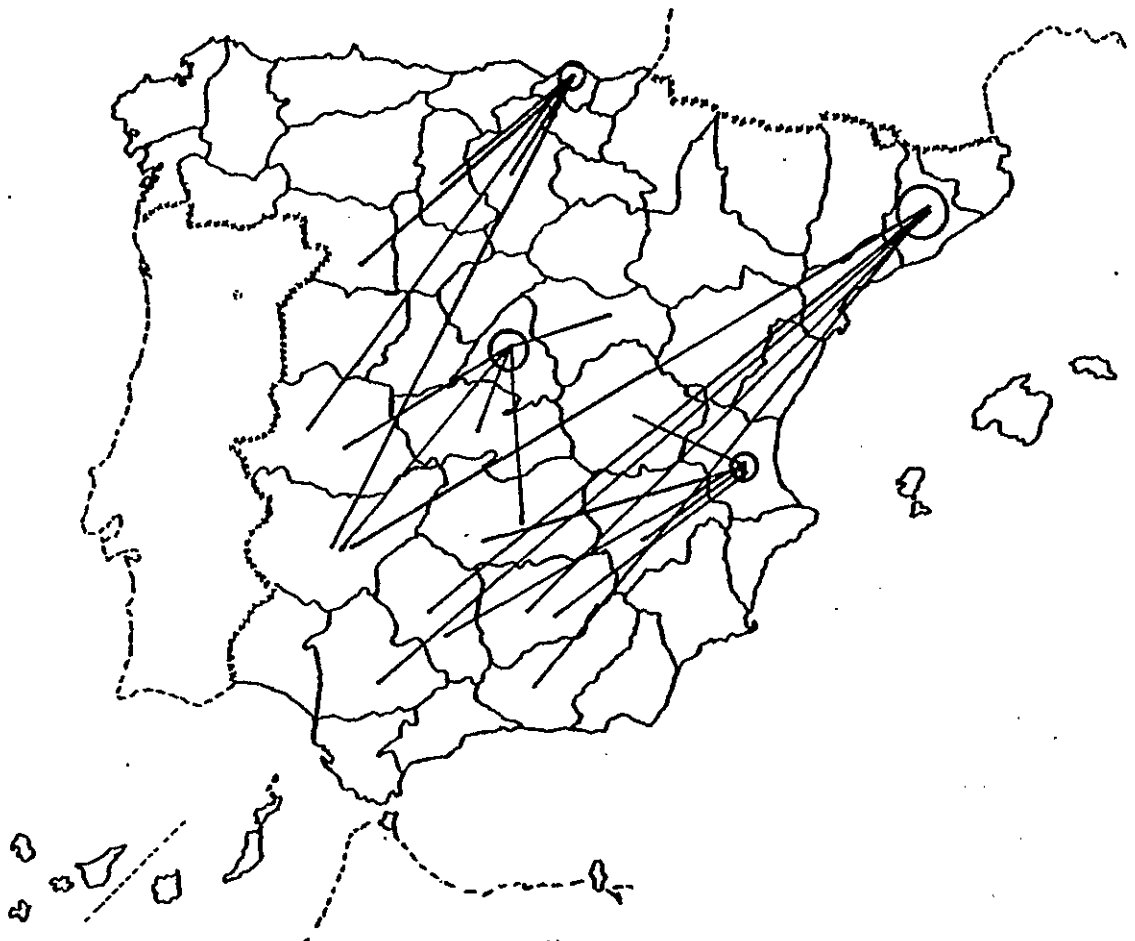
Valencia, 5.26; Vizcaya, 4.83; Alicante, 3.31; Guipuzcoa, 3.25), the total of which was 48.14% of the national total. Finally, with regards to the level of urbanization, the percentage of urban population in all except Castellon, Tarragona and Gerona was above the national average. The figures were 74.42% and 65.32%, respectively during the period 1960 to 1970. Moreover, all except Alava, Tarragona, Gerona, and Castellon, had, in 1960, at least one city with a population of more than 100,000 inhabitants. The largest of these cities were Madrid (pop.: 2,259,931), Barcelona (pop.: 1,557,863), Valencia (pop.: 509,075), and Bilbao (Vizcaya) (pop.: 297,942). This reveals the important role played by the big cities in the attraction of migrants.

Among the 40 remaining provinces, which had rates of in-migration below 12%, the only developed ones were Valladolid, Zaragoza, Navarra, Santander, Oviedo, and Baleares. Of these six, the first three exer-

cised a local power of attraction. Though Santander and expecially Oviedo were highly industrialized provinces, they did not have a high rate of in-migration, possibly due to their geographic location. On the other hand, the geographic location of Baleares made it favorable to tourism, thus increasing its rate of in-migration.

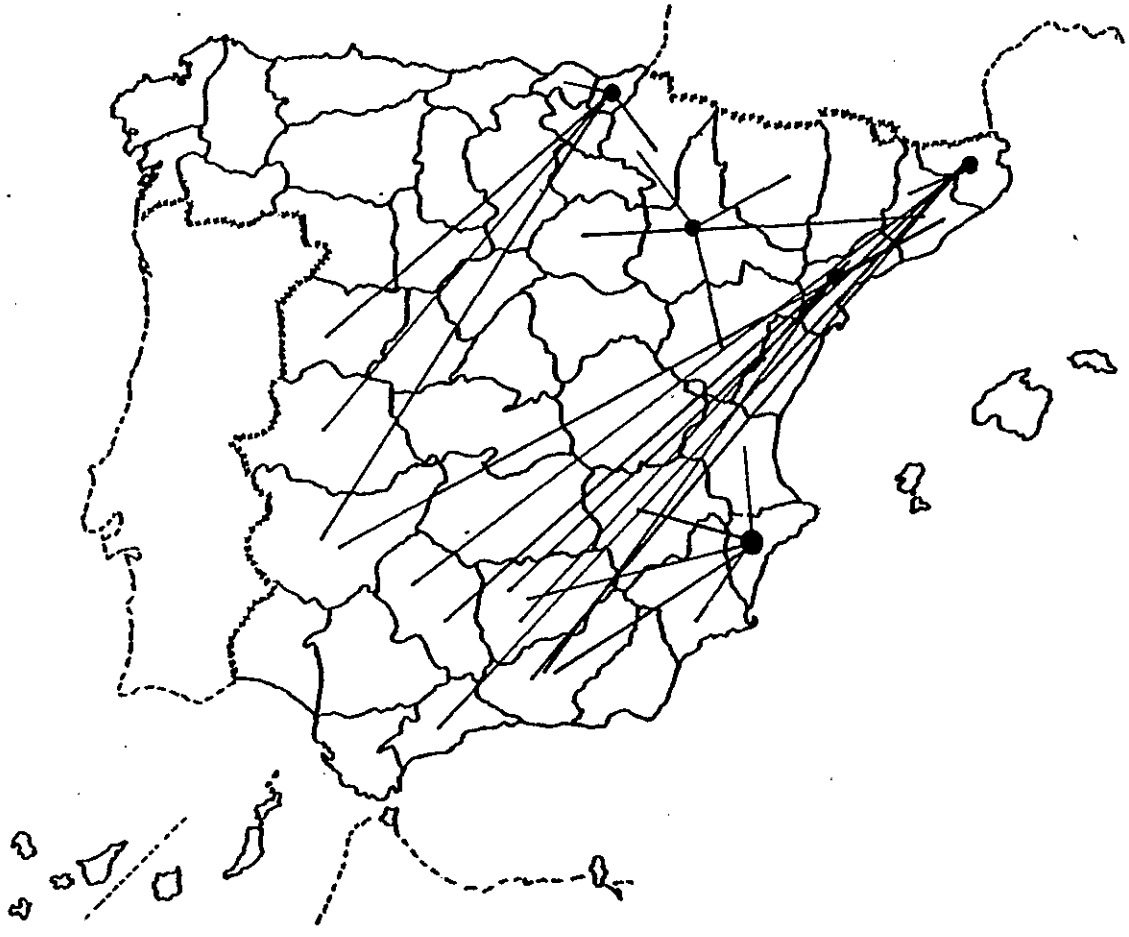
As was to be expected, the previous examination of interprovincial migration indicates that the direction of migratory flows, given the large regional disparities in economic opportunities, was primarily from underdeveloped to developed provinces (See Maps 6, 7, and 8). The provinces which attracted the highest number of migrants were Barcelona, Madrid, Valencia, and Vizcaya, absorbing 30.74%, 15.02%, 7.84%, and 6.80% of the total number of migrants, respectively. Other centers of in-migration were the provinces surrounding Barcelona (Gerona and Tarragona), those surrounding Vizcaya (Guipuzcoa, Alava, and Navarra), those on the coast of Levante, near Valencia (Alicante and Castellon), and those, which like Madrid are isolated geographically from other centers (Valladolid, in the central-west region, and Sevilla, in the south). Migration to Barcelona, the leading province of in-migration, was characterized by its long distance, since it attracted migrants primarily from the south of Spain. Migration to those provinces surrounding Barcelona also originated mainly in the south. Madrid absorbed the major part of its migrants from underdeveloped provinces that surround it. This migration was one of short distances. Valencia and those centers on the coast of Levante also absorbed migrants from nearby provinces which were not on the coast, as well as from each other. Vizcaya, as well as Guipuzcoa, received migrants from the east-central

Map 6: The Four Leading Provinces of Attraction 1962 to 1973
(lines indicate the five principal provinces of origin for each destination area)



Source: Anuario Estadístico de España (Madrid: Instituto Nacional de Estadística, 1962 to 197

Map 7: The Five Provinces with the Second Highest Volume of In-Migration 1962 to 1973



Source: Anuario Estadístico de España (Madrid: Instituto Nacional de Estadística, 1962 to 1973).

Map 8: The Six Provinces with the Third Highest Volume of In-Migration 1962 to 1973

Source: Anuario Estadístico de España (Madrid: Instituto Nacional de Estadística, 1962 to 1973).

portion of the country; although these provinces received migrants from rather distant provinces, the most numerous migrants arrived from shorter distances. Alava and Navarra, near Vizcaya and Guipuzcoa, received migrants from their bordering provinces. Valladolid and Zaragoza, being isolated centers of attraction surrounded by underdeveloped provinces, were important locally. Sevilla, another isolated province, was a minor point of destination for the highly underdeveloped south.

Maps 6, 7, and 8 also show that the provinces with the highest number of out-migrants were located in the south and in the central-west portion of Spain. The provinces with the highest volume of out-migrants were: Badajoz (5.95%), Cordoba (5.71%), Jaen (5.48%), Granada (4.95%), Caceres (4.22%), Sevilla (4.14%), and Ciudad Real (4.05%). These seven provinces had 34.50% of the total volume of out-migrants.[30]

From the previous analysis, we can see that there was a strong polarization of migratory flows toward four provinces (Barcelona, Madrid, Valencia, and Vizcaya), Barcelona being the leading province of in-migration and Madrid the second. This reveals the powers of attraction of the big city, which offers more economic opportunities, among others, to the potential migrant.[31] As has been commonly observed, migratory streams tend to follow specific routes. In Spain, there was a striking relationship between the location of the province of origin and that of the province of destination, since, in general, migrants from the west, bordering with Portugal, tended toward the north-central provinces (Basque Country), while migrants from the south and southeast tended toward provinces located on the eastern Mediterranean

coast. This was due to several factors. First, economic opportunities were concentrated in specific areas. Second, migrants, in general, tend to follow pre-established routes of transportation. Third, the first migrants to arrive at a specific destination area send information back to the province of origin, telling potential migrants of economic opportunities, and making it easier for these migrants to follow them there by lessening the social, transition, and information costs of the move. One can also note that if there is a province with some degree of development near an underdeveloped province, the individuals in the latter will move to the former rather than to a more distant developed province, possibly because of its proximity, indicating the importance of distance and intervening economic opportunities in the choice of destination. When, however, a province of origin is distant from any of the developed centers of in-migration, the role of distance becomes less important in the choice of a destination area, and the migrant will tend toward that province which is more highly developed. Lastly, the general direction of migration flows was from areas in which employment, wages, per capita income, education, health services, etc. were lower than in those areas to which they went, indicating a priori the importance of economic determinants in the decision to migrate and in the choice of the destination area.

Net Provincial Migration: The Redistribution of Human Resources

Net migration, the difference between gross in-migration and gross out-migration, indicates whether a province gains or loses human resources as a consequence of migration. As Tables 24 and 25

Table 24

Provinces with Net In-Migration 1962 to 1973

Provinces (ranked by volume)	No. of net in-migrants	% over pop. 1962	Shryock* [32] ratios
Barcelona	701,745	23.22	74
Madrid	321,830	11.65	67
Valencia	156,084	10.55	59
Vizcaya	132,338	16.75	56
Alicante	65,256	8.80	56
Guipuzcoa	41,383	8.28	31
Alava	32,977	22.35	54
Tarragona	31,299	8.39	31
Gerona	29,286	8.11	34
Zaragoza	22,686	3.37	20
Castellon	17,295	4.99	24
Navarra	16,780	4.08	25
Las Palmas	12,963	2.75	35
Baleares	10,532	2.29	33
Valladolid	4,057	1.09	20
Santa Cruz	3,357	0.66	18
Total	1,599,877	8.58	40

Source: Anuario Estadístico de España (Madrid: Instituto Nacional de Estadística, 1962 to 1973).

*This ratio is defined as:

$$\frac{\sum(\text{net in-migrants})}{\text{Total interprovincial migrants}} \times 100.$$

(Our ratios are based on the average from year to year.)

show, 16 provinces gained and 34 provinces lost human resources due to migration, during the period 1962 to 1973.[33]

Table 25

Provinces with Net Out-Migration 1962 to 1973

Provinces (ranked by volume)	No. of net out-migrants	% over population 1962	Shryock ratios*	Provinces (ranked by volume)	No. of net out-migrants	% over population 1962	Shryock ratios*
Badajoz	140,774	17.33	80	Burgos	36,422	9.63	50
Jaen	130,716	18.00	82	Huelva	35,035	8.75	74
Cordoba	125,138	15.87	69	Palencia	32,808	14.44	59
Granada	112,946	14.75	75	Lugo	32,166	6.84	69
Caceres	93,955	17.67	72	Guadalajara	27,400	15.39	66
Ciudad Real	91,894	16.04	74	Soria	27,137	19.10	73
Sevilla	73,331	5.86	50	Murcia	24,214	3.00	33
Cuenca	65,098	21.36	75	Segovia	24,075	12.63	72
Albacete	62,915	17.18	73	Avila	23,160	9.26	64
Toledo	56,577	10.10	65	Huesca	17,789	7.66	37
Cadiz	50,383	6.07	66	Orense	16,720	3.74	56
Malaga	46,213	5.85	57	Lerida	13,030	3.84	25
Salamanca	44,883	11.18	64	La Coruna	9,556	0.95	23
Teruel	43,063	20.68	65	Oviedo	7,978	0.80	17
Leon	39,899	6.88	60	Pontevedra	7,346	1.06	27
Zamora	38,276	13.03	75	Santander	5,752	1.33	15
Almeria	38,114	10.48	61	Logrono	5,144	2.22	12
TOTAL	1,599,877	9.64	57				

Source: Anuario Estadístico de España (Madrid: Instituto Nacional de Estadística, 1962 to 1973)

*See Table 24.

By examining population growth in all the provinces, we see that, by 1973, the population in the provinces of net out-migration decreased 4.41% with respect to their population in 1962. On the other hand, the population in the provinces of net in-migration increased 34.16%. Moreover, of the 34 provinces of out-migration, 23 had lower population levels in 1973 than in 1962, revealing that the volume of net out-migrants exceeded the natural growth of population during the period. The result has been a strong concentration of the population in a small number of provinces (See Table 26).

Table 26

Concentration of the Population, 1973

	% / Total National Population
The five provinces with the highest population	35.98
The ten provinces with the highest population	49.92
The five provinces with the least population	2.31
The ten provinces with the least population	5.43
The remaining thirty	44.65

Source: Renta Nacional de España y su Distribución Provincial, 1973. (Bilbao: Banco de Bilbao, 1975), p. 18.

The strong concentration of population in these few areas has given rise to extremely high levels of density of population, particularly in the large metropolitan areas. The consequence has been a congestion of population in areas such as Barcelona (539.4 inhabitants per square kilometer in 1973), Madrid (504.1), and Vizcaya (479.8).

Directly related to this was the desertion of a great part of the

country by the population. Examples of this desertion are Soria (10.8 inhabitants per square kilometer in 1973), Teruel (11.0), Guadalajara (11.8), Cuenca (13.9), etc.[34] Map 9 illustrates the gain and loss of population by province. As can be seen from Map 9, approximately 60% of the territory lost population by 1973. It is also important to note that due to the predominance of young people among migrants, the population in provinces of heavy out-migration is progressively aging.[35] Economically, migratory movements in Spain have followed the concentration of production in a small number of areas, which were traditionally developed. A by-product of this direction of migration has been the rise in per capita income in the provinces of out-migration, resulting in a decrease in the inequality of per capita income among the provinces[36] (See Table 27).

Table 27

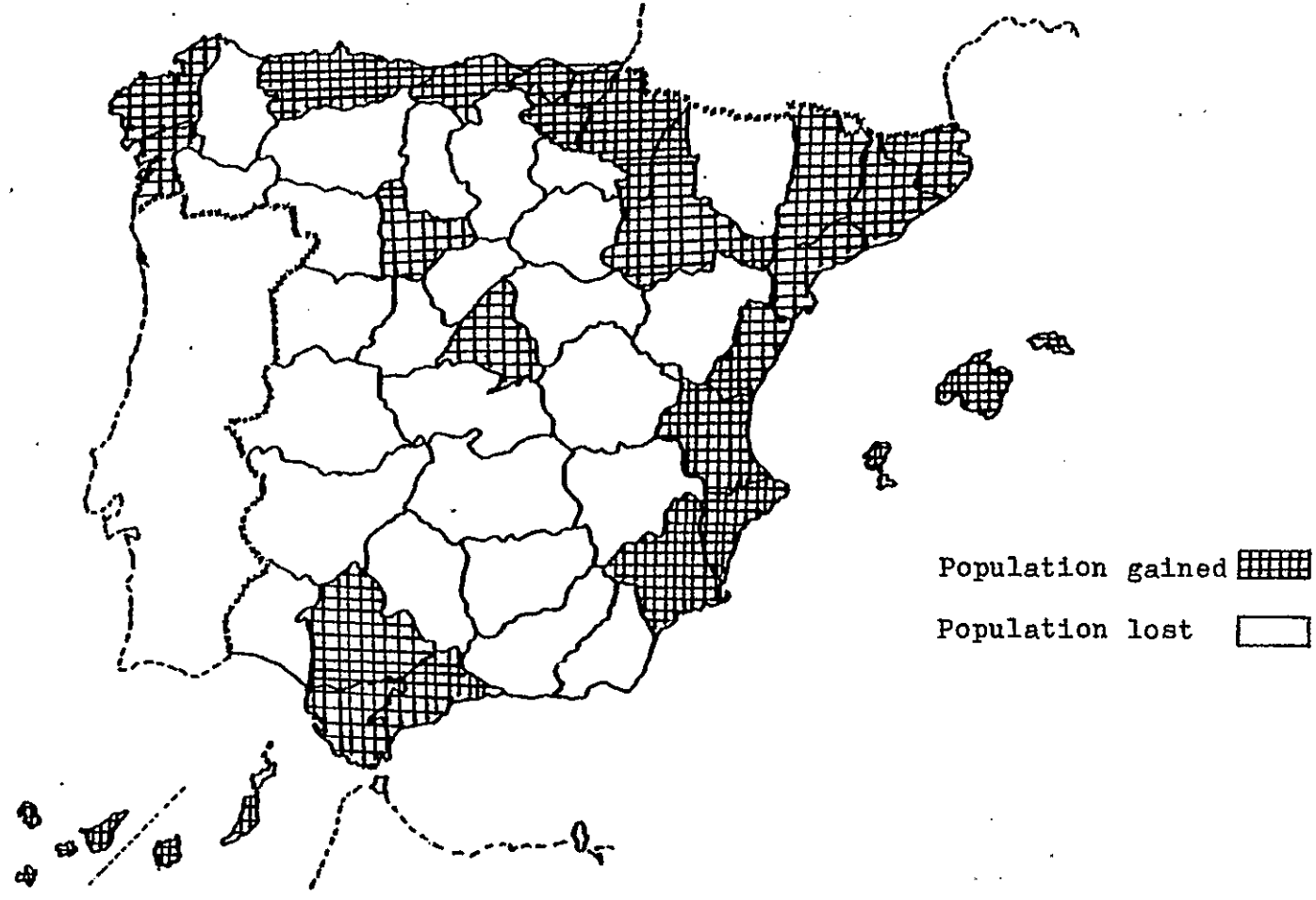
Provincial Inequality of Per Capita Income

(National Average=100)

	1962	1973
The five provinces with the highest per capita income	144.85	136.4
The ten provinces with the highest per capita income	128.61	132.1
The thirty provinces with intermediate level of per capita income	77.44	86.5
The ten provinces with the lowest per capita income	55.20	65.0
The five provinces with the lowest per capita income	51.19	62.2

Source: Renta Nacional de España y Su Distribución Provincial 1962, 1973 (Bilbao: Banco de Bilbao, 1965, 1975).

Map 9: The Gain and Loss of Population by Province 1962 to 1973



Source: Anuario Estadístico de España (Madrid: Instituto Nacional de Estadística, 1962 to 1973).

Despite this rise, however, the disparities in per capita income among the provinces are still significant so that migration away from the lesser developed provinces continues.[37] As a result, certain problems have arisen. From the social standpoint, migration has not lessened regionalistic sentiments. On the contrary, those regions which have been economically abandoned by both the migrants and the productive structure have become more regionalistic and look with disfavor upon the more privileged regions. This sentiment exists not only in those left behind but in the migrants themselves, who generally do not integrate with individuals in the chosen destination area. Consequently, there is social, political and economical instability in the country. From the economic standpoint, economic resources in the underdeveloped areas are insufficiently utilized, while, on the other hand, the over-concentration of resources and production in those few favored provinces has reached a point at which social costs are becoming very significant. It seems to be evident, then, that the net social benefits of migration have been less than its net private benefits. From the previous arguments, it seems that migratory movements must be planified under rational criteria for the benefit of the country as a whole. The problem of equity demands that the less favored parts of Spain be dealt with. The analysis of the determinats of migratory movements would be fundamental for such rational planification.

Footnotes

[1]The studies which exist are generally descriptive or related to regional growth. The analysis of the determinants of migration is an unstudied topic. Informative studies about internal migration in Spain are: Alfonso G. Barbancho, Las Migraciones Interiores Españolas, Estudio Cuantitativo desde 1900 (Madrid: Estudios del Instituto del Desarrollo Económico, 1967). Alfonso G. Barbancho, Las Migraciones Interiores Españolas en 1964 - 1965 (Madrid: Estudios del Instituto de Desarrollo Económico, 1970). Alfonso G. Barbancho, Las Migraciones Interiores Españolas en 1961-70 (Madrid: Instituto de Estudios Económicos, Ensayos, 1974). Alice Gail Bier, "Migration Trends and Migrant Characteristics: Spain, 1967," Cornell Journal of Social Relations, Vol. 9, No. 1, 1974, pp. 123-47. Antonio González Temprano, "Crecimiento Económico y Movimientos Migratorios en España," Revista de Economía Política, Jan.-April, 1975, pp. 7-79. José Manuel Naredo and Joaquín Leguina, "El Sector Agrario, Fuente de Mano de Obra," Información Comercial Española, April 1973, pp. 73-106. Vera De Guindos, "Movimiento Migratorio Español," Información Comercial Española, 1964, pp. 74-87. Carlos Cuervo Arango, "Migraciones Internas en España," Información Comercial Española, Dec. 1974, No. 496, pp. 75-83. R. P. Bradshaw, "Internal Migration in Spain," Iberian Studies, I, 1972, pp. 68-75. Paul B. Slater, "A Multiterminal Network Flow Analysis of an Unadjusted Spanish Interprovincial Migration Table," Regional Research Institute, unpublished paper forthcoming in Environment and Planning. Anatol Muñoz, "La Familia Española Migrante," Revista Internacional de Sociología, 27, 1969, pp. 89-105. Juan Lacomba, "Las Migraciones Interiores Españolas," Hispania, 1968, pp. 199-209. R. Tamames, "Los Movimientos Migratorios de la Población Española durante el periodo 1951-1960," Revista de Economía Política, No. 32, Sept.-Dec. 1962.

[2]Lee Everetts, "A Theory of Migration," Demography, Vol. 3, No. 4 1966, pp. 47-57. Joseph J. Spengler and George C. Myers, "Migration and Socioeconomic Development: Today and Yesterday," in Internal Migration, A Comparative Perspective, ed. Alan A. Brown and Egon Neuberger (New York: Academic Press, 1977), pp. 11-35.

[3]In 1960, 1973, and 1975, the G.D.P. reflected the following composition:

	1960	1973	1975
Agricultural	23.45	10.63	8.90
Fishing	1.33	0.97	0.82
Industry	32.87	38.97	39.12
Services	42.35	49.43	51.16
Total	100.00	100.00	100.00

Source: Renta Nacional de España y su Distribución Provincial 1960, 1973, 1975 (Bilbao: Banco de Bilbao, 1962, 1975, 1977).

[4]The topic of the integration of migrants and the social problems related to the existence of individuals who come from different areas has received attention in Spain, particularly from the psychological and sociological standpoint. See Antoni Jutglar et al., La Immigracio a Catalunya (Barcelona: Edicio de Materials, S.A., 1968). Victor Perez Diaz, Pueblos y Clases Sociales en el Campo Español (Madrid: Siglo XXI de Editores, 1974). R. Doucastella, "Problems of Adjustment in the Case of Internal Migration: An Example in Spain," in Readings in the Sociology of Migration, ed. C.J. Jansen (Oxford: Pergamo Press, 1970), pp. 319-339. Serva Boix, "Estudios sobre la Realidad Social Catalana. Obras sobre Poblacion y Emigracion," Anales de Sociologia, 3, 1966. J. Maluquer, L'assimilation des Inmigres en Catalogne (Geneva: 1963). The importance of this phenomenon has been reflected in other countries. See Oli Hawryshyn, "Ethnic Affinity and Migration Flows in Postwar Yugoslavia," Economic Development and Cultural Change, Vol. 26, No. 1, 1977. In this article, Hawryshyn states: "Clearly the results suggest that the attractiveness of a region involves not only economic factors but also ethnic considerations. The effect of ethnic affinity is not the unique or even the predominant influence but is, rather, an additional element to be added to the usual list of economic factors." Myron Weiner, "Internal Migration Policies: Purposes, Interests, Instruments, Effects," Policy Sciences and Population, ed. Warren F. Ilchman, et al. (Massachusetts: Lexington Books, 1976), p. 66, refers to underdeveloped countries, and he illustrates the problems that the migrant can find in the new community: "It would be a rare neighbor who did not express pleasure at the birth of a baby, while the entrance into the community of a migrant is often greeted with anxiety or hostility."

[5]Oscar Fanjul et al., Cambios en la Estructura Interindustrial de la Economía Española 1962-1970: Una Primera Aproximación (Madrid: Fundación del Instituto Nacional de Industria, Series E, No. 3, 1974). Oscar Fanjul, Crecimiento y Generación de Empleo (Madrid: Fundación del Instituto Nacional de Industria, Series E. No. 5, 1975). Fernando Maravall and José María Peréz-Prim, Cambio Estructural y Crecimiento Económico: Un Análisis del Caso Español 1962-1970 (Madrid: Fundación del Instituto Nacional de Industria, Series E, No. 4, 1975). Julio Segura, "Una Nota sobre los Efectos del Cambio en la Demanda," Boletín de Estudios Económicos, Vol. 30, No. 96, Dec. 1975, pp. 837-853. Ramón Perpiña y Grau, "El Desarrollo ¿Ha Mutado la Economía Española?" Boletín de Estudios Económicos, Vol. 30, No. 96, Dec. 1975, pp. 961-971.

[6]Jordi Nadal, La Población Española (Siglos XVI a XX) (Barcelona: Ariel, 1973), p. 262.

[7]José Ramón Lasuén, "El Proceso de Urbanización del Sistema de Ciudades de España," in Ensayos sobre Economía Regional y Urbana (Barcelona: Ariel, 1976), pp. 180-206.

[8]J. Manuel Naredo, La Evolución de la Agricultura en España. Desarrollo Capitalista y Crisis de las Formas de Producción Tradicionales (Barcelona: Editorial Estela, 1971).

[9]Fernando Maravall and José María Pérez, op. cit., pp. 31-37. Oscar Fanjul, op. cit., pp. 43-59.

[10]80% of the total were males, and 20% were females. 75% of the males were from 15-39 years of age. 75% of the females were from 15-29 years of age. José Luis Leal et al., La Agricultura en el Desarrollo Capitalista Español 1940-1970 (Madrid: Siglo XXI, 1975), pp. 190-92.

[11]The advantage of the Anuario Estadístico is that it offers data yearly, thus avoiding the problem of multiplicity of movements which can occur with the Censo de la Población. Since the Censo appears every ten years, it is possible that the migrant has moved more than once. Yet the Censo would only refer to the last destination area. With respect to the accuracy of the data, neither source is perfect, but the Censo is more reliable. The data of the Anuario Estadístico is based on the individual's declaration of a change in residency. Although this declaration is obligatory, many do not report the change.

[12]See Alfonso G. Barbanco, Las Migraciones Interiores Españolas, Estudio Cuantitativo desde 1900, op. cit.

[13]This can be seen in Maps 1 and 2 of the Appendix.

[14]Recent empirical studies have established support for the fact that relative inequality increases in the early stages of development, in general. See, M.S. Ahluwalia, "Income Distribution and Development: Some Stylised Facts," American Economic Review, May 1976. H. Chenery et al., Redistribution with Growth (Oxford: Oxford Univ. Press, 1974).

[15]This policy consisted of an establishment of poles of industrial promotion and development in low income areas with a growth potential. This was done by the government either directly or indirectly, by means of incentives. These poles produced intraprovincial polarization rather than foster provincial-wide or regional development. See Harry W. Richardson, Regional Development Policy and Planning in Spain (Lexington: Saxon House, 1975), pp. 111-139. J.R. Lasuen, "On Growth Poles," Urban Studies, 6, 1969, pp. 137-61.

[16]The classification we have made to distinguish between rural and urban population is based on the Censo de la Población, which uses the following criteria: rural=those municipalities with less than 2,000 inhabitants. intermediate=those municipalities with between 2,000 and 10,000 inhabitants. urban=those with more than 10,000 inhabitants.

[17]Harry W. Richardson, Regional Growth Theory (London: The Macmillan Press, 1974), p. 99, points out: "To the extent that regions grow because their urban centres grow (and its corollary, that industrial growth means urban growth) and to the extent that regional growth is associated with changes in the distribution of population that favour metropolitan areas, then agglomeration economies may be a critical variable in the migration function."

[18]The following statistics illustrate this: from 1941 to 1950, 81% of the total number of migrants moved to their provincial capital, while from 1951 to 1960 the figure was 56%, and from 1961 to 1970, it was 55%. Alfonso G. Barbanco, Las Migraciones Interiores Españolas en 1961-70, op. cit., p. 61.

[19]We refer here to the total of migrants. Even though it would be more illustrative to divide the migrants into interprovincial and intraprovincial, the data would not allow us to do this.

[20]See R. Paul Shaw, Migration Theory and Fact: A Review and Bibliography of Current Literature (Philadelphia: Regional Science Research Institute, 1975).

[21]We will deal with the relationship between the characteristics of each potential migrant and the expected costs and benefits of the move in our theoretical analysis in following chapters.

[22]The Censo de la Población divides migrants into the following age groups: 10-24 years, 25-49 years, and 50 or more years. According to the statistics from the Censo, the percentage of migrants for each category from 1960 to 1970 was:

10-24 years	25-49 years	50 or more
34%	49%	17%

As can be seen, young migrants predominated since 73% of the total number of migrants were under 50 years of age.

[23]According to statistics from the Censo, from 1960 to 1970, 49% of the migrants were male and 51% were female.

[24]Armando Saez, Población y Actividad Económica en España (Madrid: Siglo XXI, 1975), pp. 266-68.

[25]Unfortunately, the Censo de la Población does not give information on the employment status of migrants. As a result, we cannot refer to this data.

[26]We have selected the province as a unit of analysis for the following reasons: 1) it is a stable administrative unit, and until 1973 it was the basic unit for the administering and implementing of subnational plans; 2) it is the unit which more closely resembles the

concept of local labor market, understanding this to be those spatial units in which economic conditions are relatively homogeneous and through which information passes rapidly and easily; 3) the statistics in Spain are based on the province as a unit, so that the data is more accessible when we use this unit as the basis of study.

[27]The rate of migration is defined as gross out or in-migration divided by the population in the base year.

[28]Provincial population can be seen in Table 6 of the Appendix.

[29]William Haenszel, "Concept, Measurement, and Data in Migration Analysis," Demography, Vol. 4, No. 1, 1967, pp. 253-261.

[30]The rates of in-migration and out-migration given in the Censo de la Población for the period 1960 to 1970 can be found in Table 5 of the Appendix.

[31]The importance of cities in migration, particularly in underdeveloped countries, is reflected in the following survey: Loren Y.L. Yap, "The Attraction of Cities, A Review of the Migration Literature," Journal of Development Economics, 4, 1977, pp. 239-264. Also see E.G. von Boventer, "Determinants of Migration into West German Cities, 1956-61, 1961-6," Papers and Proceedings of the Regional Science Association, 23, 1969, pp. 53-62.

[32]This ratio measures the degree of bidirectionality of migratory flows in each province. It is also an indication of the efficiency of migration. The ratio can vary from 0 to 100. When the ratio is low, there is a higher degree of bidirectionality, and vice versa. See Henry S. Shryock Jr., "The Efficiency of Internal Migration in the United States," Proceedings, International Population Conference, Vienna, 1959, pp. 685-94. For the concept of efficiency in this ratio, see Aba Schwartz, "On Efficiency of Migration," The Journal of Human Resources, Vol. 6, No. 2, 1971.

[33]The amount of net in-migration and net out-migration provincially for the period 1960 to 1970 can be found in Table 5 of the Appendix.

[34]Renta Nacional de España y su Distribución Provincial, 1973 (Bilbao: Banco de Bilbao, 1975), p. 41. In order to see population density for each province, see Table 6 of the Appendix.

[35]The importance of migration in the distribution of the population among provinces has been underlined by Jordi Nadal and Salustiano del Campo. See Jordi Nadal, La población Española (Siglos XVI a XX), op. cit., pp. 204-69. Salustiano del Campo, Análisis de la Población de España (Barcelona, Ariel, 1972).

[36]J. Ramón Lasuén, Ensayos sobre Economía Regional y Urbana (Barcelona: Ariel, 1976), points out that the tendency of the inequality of per capita income to decrease is more arithmetical than real.

[37]The problem of provincial inequality is of increasing importance in Spain. A recent publication , Renta Nacional de España y su Distribución Provincial, 1975 (Bilbao: Banco de Bilbao, 1977), p. 27, underlines the grave problem posed by regional inequality in Spain. It concludes the following: "Definitely, the problem posed by Spanish regional growth and its disequilibrium has been ignored and is awaiting the vigorous action of a policy capable of efficiently correcting it. The depressed situation of vast areas of the Spanish geography, particularly those in Extremadura, Andalucia, Galicia and Castilla obviously requires the solid effort of the whole nation. Otherwise, invertebrate Spain will continue to exist for some time."

[38]Alfonso G. Barbancho, Las Migraciones Internas Españolas en 1961-70, op. cit., p. 47.

[39]Alfonso G. Barbancho, Las Migraciones Internas Españolas en 1961-70, op. cit., p. 96.

APPENDIX

Table 1

Migrants by Size of the Municipality of Origin

Year	Size										
	P≤2,000	%	2,000<P≤ 10,000	%	10,000<P≤ 20,000	%	20,000<P≤ 100,000	%	100,000<P	%	Total
1962	96,962	27.76	128,438	36.76	39,347	11.26	50,193	14.37	34,406	9.85	349,346
1963	121,420	27.31	162,300	36.51	46,940	10.56	67,862	15.26	46,065	10.36	444,587
1964	135,568	27.21	185,729	37.28	53,243	10.69	73,560	14.76	50,103	10.06	498,203
1965	118,942	26.54	164,204	36.64	50,504	11.27	66,583	14.86	47,893	10.69	448,126
1966	71,402	25.49	95,756	34.19	31,633	11.29	46,517	16.61	34,774	12.42	280,082
1967	92,708	24.19	125,065	32.63	44,964	11.73	63,988	16.70	56,534	14.75	383,259
1968	81,490	21.99	118,181	31.90	43,244	11.67	61,953	16.72	65,655	17.72	370,523
1969	83,392	21.39	124,616	31.96	45,106	11.57	65,060	16.68	71,734	18.40	389,908
1970	82,574	21.71	122,975	32.33	44,798	11.78	65,046	17.10	64,958	17.08	380,351
1971	46,476	21.52	67,653	31.32	23,610	10.93	41,177	19.06	37,094	17.17	216,010
1972	66,936	18.65	97,226	27.08	39,462	10.99	72,437	20.18	82,932	23.10	358,993
1973	79,260	18.06	115,476	26.31	49,247	11.22	81,491	18.57	113,445	25.84	438,919
Total 1962-1973	1,077,130		1,507,619		512,098		755,867		705,593		4,558,307

Source: Anuario Estadístico de España (Madrid: Instituto Nacional de Estadística, 1962 to 1973).

APPENDIX

Table 2

Migrants by Size of the Municipality of Destination

Year	Size										
	P≤2,000	%	2,000<P≤ 10,000	%	10,000<P≤ 20,000	%	20,000<P≤ 100,000	%	100,000<P	%	Total
1962	33,968	9.72	75,814	21.70	33,426	9.57	78,614	22.50	127,524	36.51	349,346
1963	37,416	8.43	91,609	20.60	42,564	9.57	105,329	23.69	167,669	37.71	444,587
1964	36,808	7.39	104,078	20.89	49,643	9.96	120,986	24.29	186,688	37.47	498,203
1965	30,815	6.88	95,297	21.26	45,569	10.17	110,909	24.75	165,536	36.94	448,126
1966	23,702	8.46	61,409	21.93	28,897	10.32	70,140	25.04	95,934	34.25	280,082
1967	30,836	8.05	85,218	22.23	45,808	11.95	99,062	25.85	122,335	31.92	383,259
1968	30,431	8.21	84,957	22.93	44,981	12.14	92,844	25.06	117,310	31.66	370,523
1969	31,439	8.06	93,499	23.98	49,560	12.71	93,821	24.06	121,589	31.19	389,908
1970	26,264	6.90	84,314	22.17	47,567	12.51	99,996	26.29	122,210	32.13	380,351
1971	16,160	7.48	53,822	24.92	24,493	11.34	59,036	27.33	62,499	28.93	216,010
1972	21,192	5.90	59,166	16.48	42,681	11.89	115,988	32.31	119,966	33.42	358,993
1973	21,137	4.81	68,510	15.61	58,758	13.39	145,636	33.18	144,878	33.01	438,919
Total 1962-1973	340,168		957,693		513,947		1,192,361		1,554,138		4,558,307

Source: Anuario Estadístico de España (Madrid: Instituto Nacional de Estadística, 1962 to 1973).

APPENDIX

Table 3

Migrants by Type of Occupation 1962 to 1968

Year	Managers, High Positions	Professionals, Technicians	Administrative Employees, Clerks	Domestic Servants, Subordinates	Skilled Laborers	Unskilled Laborers	Total Active Population	Total Inactive Population
1962	2,568	7,555	13,374	6,488	54,862	52,627	137,474	211,872
1963	2,597	10,401	20,121	8,066	68,480	66,855	176,520	268,067
1964	2,833	10,234	23,108	9,326	76,096	77,024	198,621	299,582
1965	2,351	8,238	20,937	8,665	67,535	66,548	174,274	273,852
1966	1,430	7,979	13,419	6,025	38,163	40,283	107,299	172,783
1967	1,847	10,536	19,762	8,676	52,818	49,378	143,017	240,242
1968	1,744	8,927	21,099	8,642	53,086	39,682	133,180	237,343
Total 1962-1968	15,370	63,870	131,820	55,888	411,040	392,397	1,070,385	1,703,741

Source: Anuario Estadístico de España (Madrid: Instituto Nacional de Estadística, 1962 to 1968).

APPENDIX

Table 4

Migrants by Type of Occupation 1969 to 1973

Year	Managers, Professionals, Technicians	Administrative Employees	Merchants	Domestic Servants	Farmers, Fishermen	Industrial Workers (unskilled, agricultural)	Others (not specified)	Total Active Population	Total Inactive Population
1969	9,268	11,535	6,664	9,727	13,539	81,834	6,790	139,357	250,551
1970	8,927	11,630	6,456	9,393	12,319	80,736	6,397	135,858	244,493
1971	5,268	5,420	3,002	5,421	7,032	41,998	5,278	73,419	142,591
1972	9,547	10,791	5,546	9,852	10,266	73,305	7,144	126,451	232,542
1973	13,437	15,894	7,469	12,573	10,615	88,325	6,593	154,906	284,013
Total 1969-1973	46,447	55,270	29,137	46,966	53,771	366,198	32,202	629,991	1,154,190

Source: Anuario Estadístico de España (Madrid: Instituto Nacional de Estadística, 1969 to 1973).

APPENDIX

Table 5

Rates of Out-Migration, Rates of In-Migration and Net-Migration, 1960 to 1970

Provinces	Rates of Out-Migration	Rates of In-Migration	Net Migration
Alava	7.86	24.78	+ 22,684
Albacete	16.70	2.25	- 53,637
Alicante	2.96	12.36	+ 66,894
Almeria	10.65	3.62	- 25,348
Avila	17.52	1.91	- 37,240
Badajoz	18.11	1.55	-138,214
Baleares	2.27	8.88	+ 29,308
Barcelona	2.35	20.67	+527,459
Burgos	14.25	5.10	- 34,881
Caceres	19.09	1.78	- 94,260
Cadiz	7.99	3.12	- 39,851
Castellon	5.13	9.43	+ 14,584
Ciudad Real	17.77	1.81	- 93,216
Cordoba	15.75	2.17	-108,379
Coruna	3.46	2.49	- 9,603
Cuenca	20.78	1.64	- 60,411
Gerona	3.16	10.45	+ 25,587
Granada	13.99	2.33	- 89,777
Guadalajara	22.07	4.14	- 32,916
Guipuzcoa	5.80	15.32	+ 45,552
Huelva	9.97	2.57	- 29,621
Huesca	13.06	4.45	- 20,121
Jaen	17.73	1.63	-118,562
Leon	11.23	3.00	- 48,109
Lerida	9.76	6.14	- 11,270

APPENDIX Table 5 (Continued)

Logrono	9.11	5.72	- 7,792
Lugo	9.22	1.23	- 38,290
Madrid	3.90	22.91	+495,552
Malaga	7.54	4.30	- 25,112
Murcia	5.99	2.85	- 25,086
Navarra	5.80	8.69	+ 11,627
Orense	6.56	1.85	- 21,261
Oviedo	3.80	4.29	+ 4,863
Palencia	18.19	4.18	- 32,502
Palmas (las)	1.95	3.39	+ 6,532
Pontevedra	3.67	3.21	- 3,095
Salamanca	14.21	3.58	- 43,106
Santa Cruz	1.62	2.41	+ 3,867
Santander	5.67	4.63	- 4,521
Segovia	19.05	2.89	- 31,602
Sevilla	7.87	4.31	- 43,956
Soria	23.35	2.54	- 30,618
Tarragona	6.36	11.50	+ 18,636
Teruel	20.64	2.78	- 38,447
Toledo	15.94	2.55	- 69,822
Valencia	2.65	10.44	+111,338
Valladolid	9.76	10.69	+ 3,392
Vizcaya	4.33	16.95	+ 95,134
Zamora	11.91	2.01	- 41,859
Zaragoza	6.25	10.45	+ 27,609

Source: Censo de la Población de España (Madrid: Instituto Nacional de Estadística, 1973).

APPENDIX

Table 6

Provincial Population, Urban Population, and Density of Population

Provinces	Provincial Population[1] 1960	Provincial Population[1] 1973	% Urban Population* 1960-1970[2]	Density of Population[3] (inhabitants per km²) 1960	Density of Population[3] (inhabitants per km²) 1973
Alava	138,934	220,722	64.10	45.6	72.4
Albacete	370,976	340,328	46.26	25.0	22.3
Alicante	711,242	928,951	66.83	121.4	164.8
Almeria	360,777	395,462	49.37	41.1	43.5
Avila	238,372	210,889	13.22	29.6	24.8
Badajoz	834,370	700,901	40.12	38.5	31.0
Baleares	443,327	557,434	61.18	88.4	115.7
Barcelona	2,877,966	4,174,846	83.89	372.2	539.4
Burgos	380,791	360,724	40.27	26.7	25.0
Caceres	544,407	469,836	20.16	27.3	22.4
Cadiz	818,847	916,429	87.83	110.9	123.1
Castellon	339,299	399,451	54.45	50.8	59.3
Ciudad Real	583,948	508,739	51.22	20.6	25.2
Cordoba	798,437	742,727	68.59	58.2	52.3
Coruna	991,729	1,067,600	55.18	125.9	129.0
Cuenca	315,433	246,280	11.26	18.5	13.9
Gerona	351,369	428,780	32.29	59.7	72.7
Granada	769,408	756,899	44.12	61.4	58.3
Guadalajara	183,545	147,195	16.57	15.1	11.8
Guipuzcoa	478,337	649,246	70.31	239.5	331.1
Huelva	399,934	416,342	45.21	39.7	39.6
Huesca	233,543	221,099	25.84	14.9	14.0
Jaen	736,391	676,680	55.82	54.6	48.3
Leon	584,594	565,821	28.95	37.8	35.3
Lerida	333,765	347,241	25.82	27.7	28.9

APPENDIX Table 6 (Continued)

Logrono	229,852	239,300	37.84	45.7	47.4
Lugo	479,530	425,209	34.81	48.9	41.6
Madrid	2,606,254	4,002,296	91.82	326.0	504.1
Malaga	775,167	869,120	67.47	106.5	122.6
Murcia	800,463	875,114	84.91	70.7	75.8
Navarra	401,042	479,893	34.84	38.6	45.8
Orense	451,474	448,531	17.26	62.0	56.2
Oviedo	989,344	1,089,311	82.86	93.6	100.4
Palencia	231,977	197,952	25.08	28.9	24.2
Palmas (las)	453,793	600,297	78.95	111.6	151.6
Pontevedra	680,229	815,165	64.57	151.9	171.9
Salamanca	405,729	380,816	35.77	32.9	29.8
Santa Cruz	490,655	611,683	66.57	152.9	191.6
Santander	432,132	492,155	41.94	81.7	90.0
Segovia	195,602	161,992	21.41	28.2	23.0
Sevilla	1,234,435	1,375,401	74.56	88.2	96.9
Soria	147,052	114,649	17.43	14.3	10.8
Tarragona	362,679	452,881	45.46	57.7	71.2
Teruel	215,183	167,416	16.44	14.5	11.0
Toledo	521,637	480,271	21.72	33.9	30.2
Valencia	1,429,708	1,837,304	66.63	132.8	170.8
Valladolid	363,106	432,361	53.50	44.3	51.7
Vizcaya	754,383	1,098,298	77.41	341.4	497.8
Zamora	301,129	257,031	22.60	28.5	23.3
Zaragoza	656,772	793,866	62.36	38.2	45.6
Spain	30,582,936	35,355,039	61.45	60.3	68.8

Sources: [1]Censo de la Población de España (Madrid: Instituto Nacional de Estadística, 1968) and Anuario Estadístico de España [2](Madrid: Instituto Nacional de Estadística, 1973). Anuario Económico y Social de España, 1977 (Barcelona: [3]Editorial Planeta, 1977), p. 190. Anuario Económico y Social de España, 1977, op. cit., p. 189, and Renta Nacional de España y su Distribución Provincial (Bilbao: Banco de Bilbao, 1975), p. 41.

*Urban is defined as an area with a population of more than 10,000 inhabitants.

APPENDIX

Table 7

Provincial Employment Distribution, Per Capita Income, and Degree of Industrialization, 1960 to 1973*

Provinces	Employment Distribution %			Per Capita Income	Rate of Growth of Per Capita Income %	Degree of Industrialization**
	Industry	Agriculture	Services			
Alava	51.53	21.19	27.28	67,095	36.2	1.03
Albacete	21.91	51.89	26.20	32,982	35.7	.65
Alicante	45.45	25.00	29.55	44,838	36.3	3.31
Almeria	20.39	52.68	26.93	29,200	35.0	.57
Avila	13.52	63.00	23.48	31,198	32.8	.28
Badajoz	18.82	56.19	24.99	29,610	31.0	1.09
Baleares	30.79	25.33	43.88	61,136	38.3	1.70
Barcelona	56.37	4.78	38.85	68,237	29.8	19.38
Burgos	24.35	47.29	28.36	46,389	35.5	.93
Caceres	18.21	58.84	22.95	27,763	33.2	.76
Cadiz	30.42	32.97	36.62	36,059	31.7	1.86
Castellon	30.92	43.81	25.27	48,484	30.5	1.22
Ciudad Real	26.59	48.94	24.47	33,808	36.2	1.15
Cordoba	27.88	49.15	27.97	32,204	31.7	1.33
Coruna	20.35	55.08	24.57	36,609	34.5	2.03
Cuenca	16.65	62.63	20.72	33,387	36.4	.40
Gerona	42.66	22.68	34.66	60,578	33.8	1.84
Granada	18.08	52.49	29.43	28,508	37.5	1.04
Guadalajara	21.99	52.42	25.59	42,058	39.0	.35
Guipuzcoa	55.53	11.36	33.11	71,327	26.3	3.25
Huelva	28.85	41.65	29.50	34,731	31.8	.89
Huesca	26.88	43.80	29.32	49,495	32.2	.65
Jaen	21.68	54.52	23.80	28,700	30.8	1.16
Leon	25.79	48.86	25.35	40,083	34.3	1.45
Lerida	26.75	45.40	27.85	53,712	33.7	.93

APPENDIX Table 7 (Continued)

Logrono	32.76	41.39	25.85	53,144	31.3	.81
Lugo	12.72	69.02	18.26	30,809	31.2	.64
Madrid	39.10	4.32	56.58	70,573	31.1	12.11
Malaga	25.40	38.26	36.34	35,001	37.2	1.65
Murcia	31.24	37.76	31.00	36,613	35.2	2.03
Navarra	31.79	33.64	34.57	58,118	32.2	1.69
Orense	15.65	66.48	17.87	27,640	38.0	.72
Oviedo	39.05	34.47	26.48	48,543	29.2	3.78
Palencia	28.21	43.93	27.86	41,222	32.5	.56
Palmas (las)	23.51	34.99	41.50	39,215	35.5	1.05
Pontevedra	24.14	51.63	24.23	39,336	34.5	1.83
Salamanca	22.36	47.80	29.84	36,912	34.2	.76
Santa Cruz	23.78	41.44	34.78	36,123	33.8	1.01
Santander	34.88	35.68	29.44	55,276	29.0	1.58
Segovia	22.57	47.96	29.47	41,491	33.3	.37
Sevilla	29.87	34.38	35.75	38,264	30.0	3.02
Soria	20.17	51.85	27.98	42,235	38.3	.25
Tarragona	30.84	38.88	30.28	54,752	30.5	1.33
Teruel	22.58	55.28	22.14	39,605	35.1	.43
Toledo	24.67	52.42	22.91	36,387	37.6	1.10
Valencia	33.91	30.25	35.84	50,970	29.0	5.26
Valladolid	30.84	31.85	37.31	51,050	34.5	1.09
Vizcaya	53.89	10.75	35.36	73,294	27.6	4.83
Zamora	15.23	60.30	24.47	34,127	27.3	.42
Zaragoza	35.08	25.50	39.42	52,567	31.5	2.43
Spain	33.49	33.11	33.40	48,681	33.3	100.00

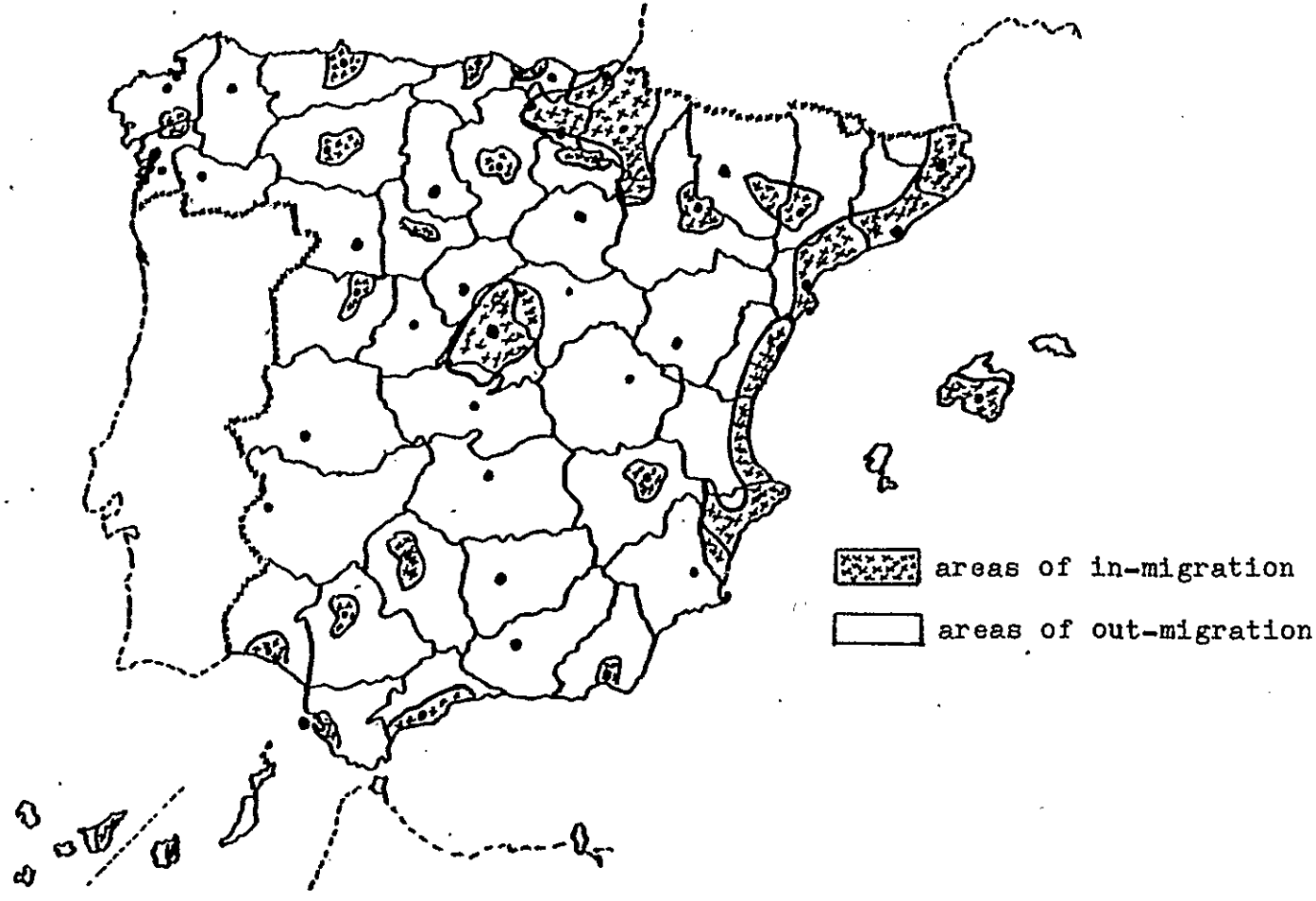
Source: Renta Nacional de España (Bilbao: Banco de Bilbao, 1960 to 1973).

*The figures are the average of the following years: 1960, 1962, 1964, 1967, 1969, 1971, and 1973, since Renta Nacional de España refers only to these years.

**Measured as the per cent share of industrial employment.

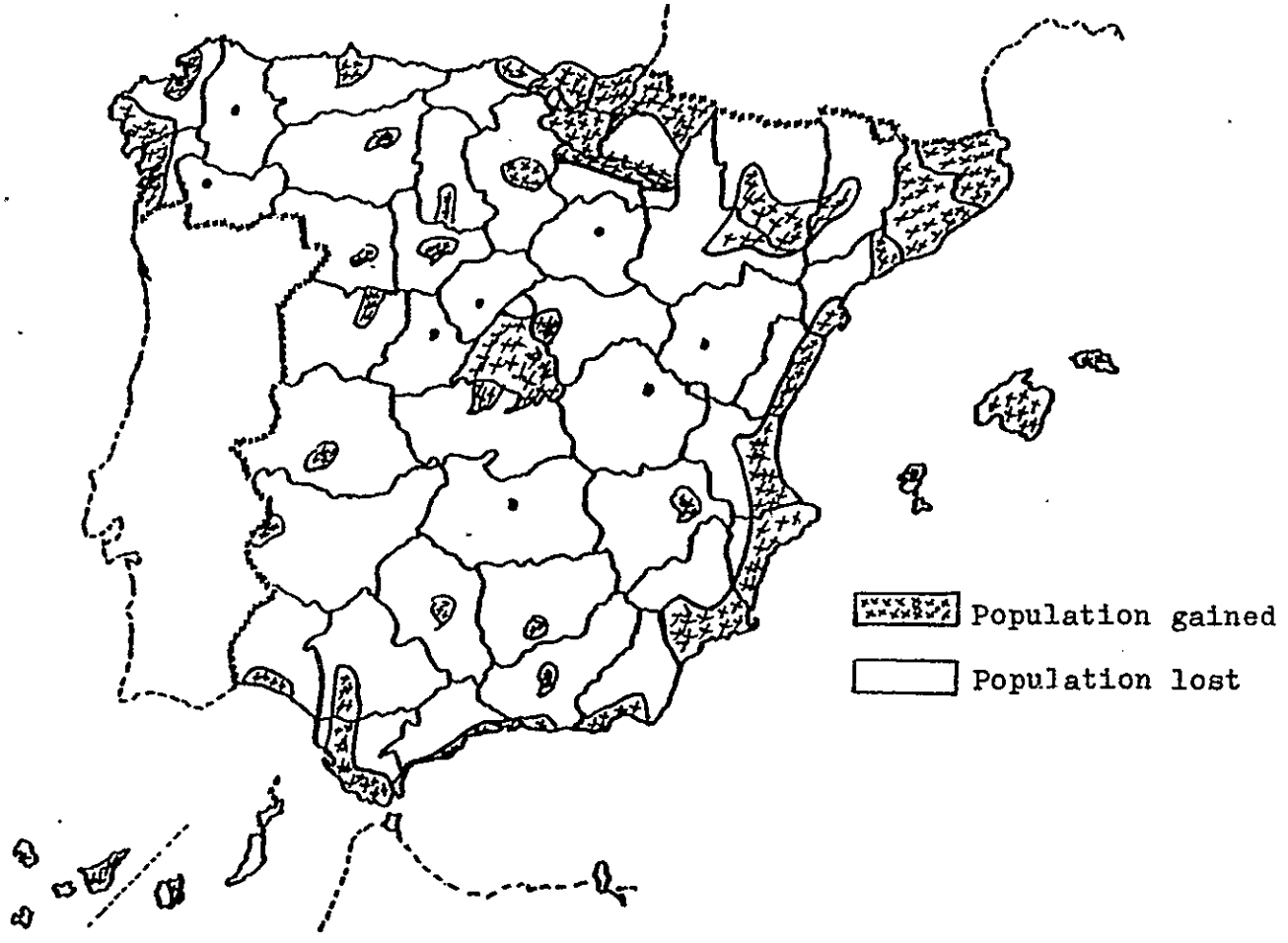
APPENDIX

Map 1: Areas of In-Migration and Out-Migration 1960 to 1970[38]



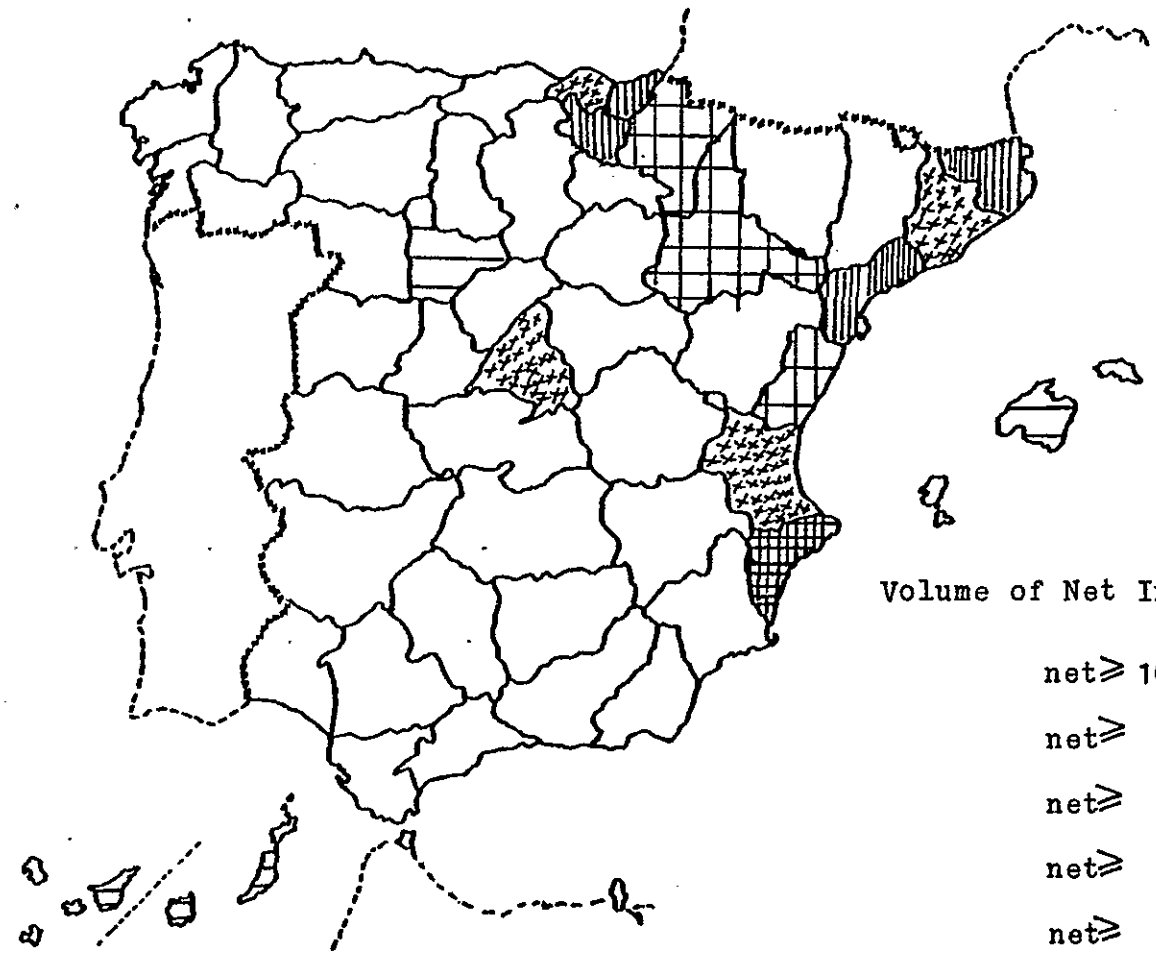
APPENDIX

Map 2: Areas that Gain and Lose Population 1960 to 1970[39]



APPENDIX

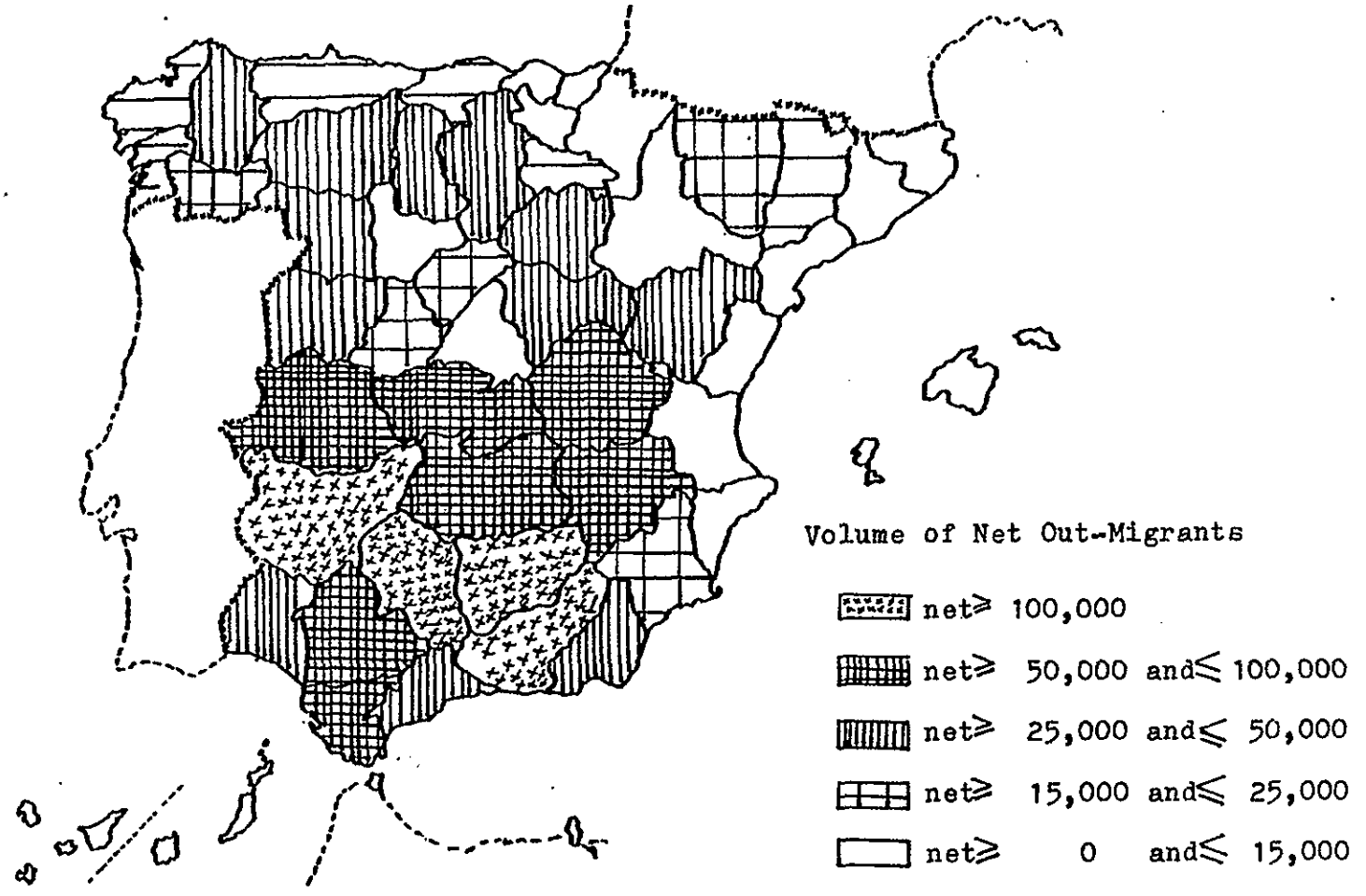
Map 3: Provinces of Net In-Migration 1962 to 1973



Source: Anuario Estadístico de España (Madrid: Instituto Nacional de Estadística, 1962 to 1973).

APPENDIX

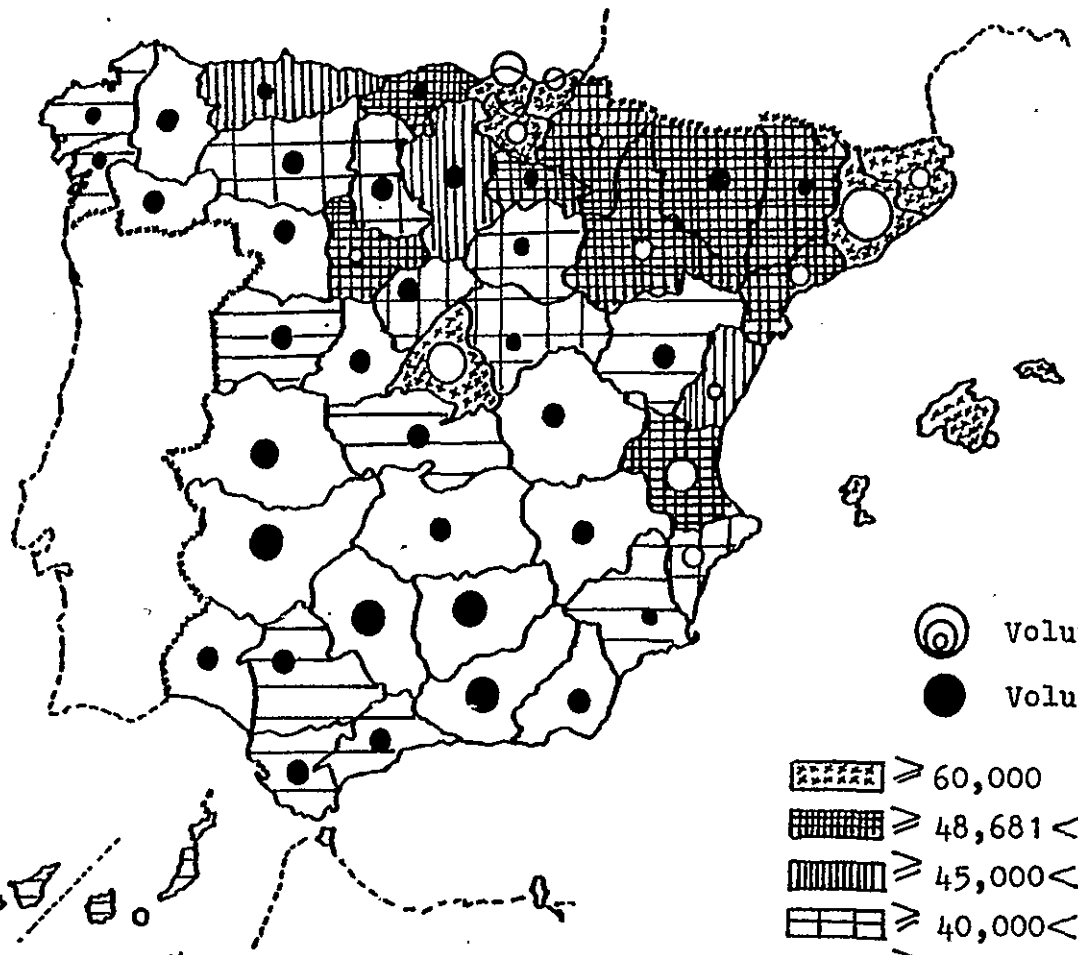
Map 4: Provinces of Net Out-Migration 1962 to 1973



Source: Anuario Estadístico de España (Madrid: Instituto Nacional de Estadística, 1962 to 1973).

APPENDIX

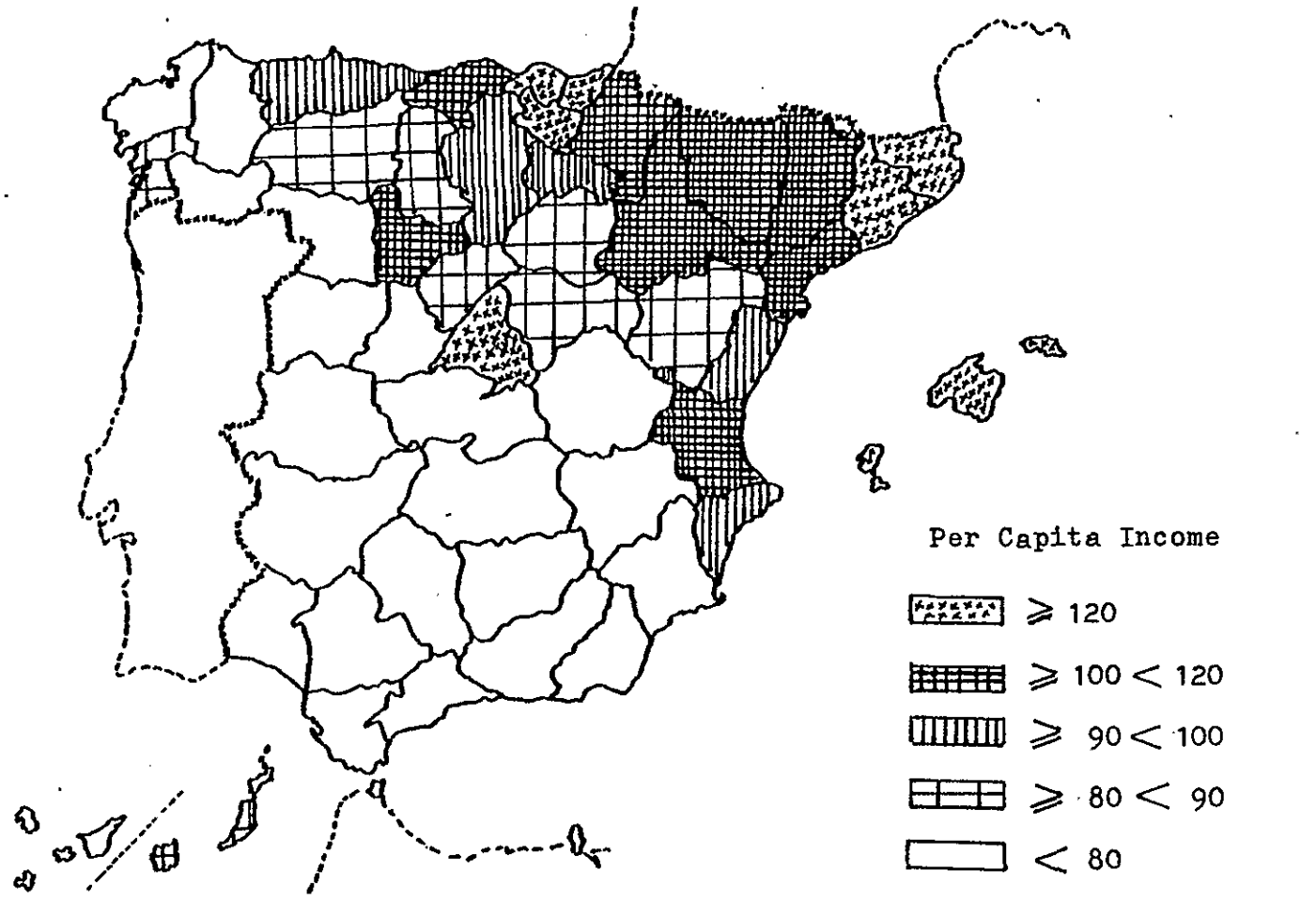
Map 5: Net Migration and Per Capita Income 1962 to 1973



Source: Anuario Estadístico de España (Madrid: Instituto Nacional de Estadística, 1962 to 1973), and Appendix, Table 7.

APPENDIX

Map 6: The Provincial Inequality of Per Capita Income 1962 to 1973



Source: Appendix, Table 7.

CHAPTER II

THE DETERMINANTS OF INTERNAL MIGRATION: AN ECONOMIC APPROACH

Migration can be studied from two different perspectives. One perspective analyzes the determinants of the decision to migrate, and the other studies the consequences of migratory movements. The first approach proposes to identify the possible factors that affect the decision to move and the choice of destination. In other wordds, migration is the end to be explained. The second approach proposes to see the consequences of migratory flows in the area of origin, destination and in the society as a whole. In this case, migration is a means of explaining other ends.[1] Migration is a complex phenomenon, not only because of the multiple and interrelated factors that appear as its causes, but also because of the different effects that it brings about. Due to the variety of possible causes and effects, internal migratory movements have been studied by different disciplines - particularly sociology, demography, anthropology and economics - all of which have given partial explanations of the phenomenon.[2] The variety of approaches is more evident when dealing with the consequences of migration than when dealing with its causes. For example, sociology is particularly interested in social mobility, the stability of social institutions and the social behavior of migrants in the area of destination. Demography sees migration as a variable which together with births and deaths explains the change of composition and distribution of the population in different times and areas. Anthropology studies the break from traditional customs and the cul-

tural effects of migration in different community groups. Finally, economics considers migration a means of redistributing human resources and is interested in the effects of this redistribution in the economic growth of the different regions and in the country as a whole.

When analyzing the determinants of migration, the relevant variables used to explain the decision to migrate are basically the same in all the disciplines (i.e. age, education, family status, occupation, etc.) and are differentiated by the contents which the disciplines give to the variables. In spite of the various disciplinary approaches, there exists a general consensus, among economists and non-economists alike, that there is a predominance of economic motives in the set of factors influencing the decision to migrate, particularly among individuals between 15 and 65 years of age. There is strong empirical evidence to support the idea that the determinants of migratory movements are fundamentally economic. The evidence comes from surveys[3] as well as from econometric models,[4] and is applicable to both developed and underdeveloped countries.

Although we recognize that the determinants of migration are not exclusively economic, many of the causes which have been considered non-economic, such as climate, job satisfaction, social and environmental conditions, etc., have an economic interpretation. For example, amenities or disagreeable aspects of a location can be considered formulations of benefits and costs. Thus, such things as change in the style of life and distance from family and friends are various dimensions of cost or benefit. Moreover, migration has strong market char-

acteristics, so that the functioning of the market appears to be explanatory, up to a certain point, of the migratory movements of a country. Our approach will be economic, and we will try to identify the economic and non-economic factors that make a self-selected group of the population move from one province of Spain to another.

In economic terms, migration is the process that re-allocates human resources among alternative industrial and occupational uses across space. The object of this analysis is not the total migrant population, but a specific subgroup, the potentially active population. In other words, labor mobility is more restricted than total migration. Even though secondary migrants - children, retired individuals, military personnel, etc. - affect the economic structure and activity of the regions of origin and destination (mainly as consumers), and even though they indirectly influence the decision of the principal migrant, their move is either not voluntary or is not economically motivated. As a result, ideally they are not a part of the object of analysis. When studying labor mobility, a distinction should be made between occupational and geographic mobility. While occupational mobility does not necessarily entail a change in the local labor market, geographic mobility implies a change in the local labor market. Evidently, both types are not mutually exclusive. Geographic mobility can come, and as a fact generally is, accompanied by occupational mobility, since, generally, the more relevant alternatives for migrants are among rather than within occupations.[5]

In our analysis, we will refer to the determinants of geographic

mobility, explaining its underlying economic rationale by considering the individual as the unit of analysis. We will interpret how various personal and economic circumstances affect the decision to migrate. Once this has been accomplished, we will use it to explain migration as an aggregate phenomenon.

The Economic Rationality of Individual Internal Migration

The basic conceptual framework in our analysis of the economic rationality of individual internal migration is the theory of human capital.[6] According to this theory, the decision to migrate is conceptualized as an investment in human capital, which will impose certain costs and produce certain benefits.[7] Since the objective of the potential migrant is the maximization of his lifetime utility, he will evaluate the effects of expected benefits (gain in utility) and those of expected costs (disutility) of migration in his utility function when deciding whether to migrate. If we consider that the decision to migrate is made once and for all, and that perfect information does not exist, both benefits and costs are potential. In other words, they are expected to be realized in the time remaining after making the decision to migrate. The potential migrant will base his decision to migrate and select his destination area by comparing the expected lifetime relative benefits and relative costs of the move to those of remaining in the original area. Given that the individual makes his decision at a specific moment (the present), he will adjust the value of the expected costs and benefits in his utility

function to that moment. By using the criterion of present value as an instrument to adjust the expected lifetime net benefits,[8] the potential migrant will face the following alternatives: to remain in his area of origin (i) with a present value of expected real income, or of expected lifetime utility, equal to:

$$\text{P.V. of } E(Y_{it}) = \int_{t_o=0}^{T} Y_{it} e^{-rt} dt \quad \text{or} \quad \text{P.V. of } E(U_{it}) = \int_{t_o=0}^{T} U_{it} e^{-rt} dt$$

or to move to another area (j), j=(1...n) with a present value of expected real income equal to:

$$\text{P.V. of } E(Y_{jt}) = \int_{t_o=0}^{T} Y_{jt} e^{-rt} dt$$

and with a present value of expected cost equal to:

$$\text{P.V. of } E(C_{ijt}) = \int_{t_o=0}^{T} C_{ijt} e^{-rt} dt$$

which will result in an expected lifetime utility equal to:

$$\text{P.V. of } E(U_{jt}) = \int_{t_o=0}^{T} U_{jt} e^{-rt} dt$$

where: P.V. indicates present value. $E(Y_{it})$ and $E(Y_{jt})$ are expected real income (monetary and non-monetary job and nonjob benefits), at i (origin) or j (destination), for $\forall$ i,j; $i \neq j$. $E(U_{it})$ and $E(U_{jt})$ are the expected lifetime utility at i and j, respectively. $E(C_{ijt})$ are the direct costs of the move (monetary and non-monetary). $t=(t_o...t)$ is the time remaining in the active working life, where $t_o=0$ is the moment (age) when the decision is taken, and T is the retirement age

(assuming that T is the same in any area, i, j). r is the subjective rate of discount, which includes the premium for risk and uncertainty. We assume that r is the same for i and j, and that is includes monetary and non-monetary preferences. r will be different in i and j if the capital markets are not in equilibrium.

The rational individual will decide to migrate if:

$$B_{ij}=P.V.\left[E(Y_{jt}) - E(Y_{it}) - E(C_{ijt})\right] > 0$$

which implies that the P.V. of $\left[E(U_{jt}) - E(U_{it})\right] > 0$. Where B_{ij} indicates the present value of expected net benefits, monetary and non-monetary. $E(Y_{it})$ indicates the income foregone as a consequence of the move. $E(C_{ijt})$ indicates the direct costs of the move, monetary and non-monetary. $E(U_{jt})$, $E(U_{it})$ represent the expected lifetime utility at j and i, respectively. The difference between $E(U_{jt})$ and $E(U_{it})$ is the gain in utility as a consequence of migration. Moreover, the potential migrant will choose as a destination the area in which B_{ij} is the maximum. Alternatively, if:

$$\max_{j} \; B_{ij} \leqslant 0, \text{ for } \forall \; i,j; \qquad i \neq j$$

the individual will remain in his area of origin ($\max_{j} B_{ij} < 0$) or he will be indifferent to moving to j or remaining in i ($\max_{j} B_{ij} = 0$).

Under this conceptual framework, the determinants of both the decision to migrate and the choice of a destination area are those factors which affect the realization of expected lifetime costs and beneftis and their effect on lifetime utility. The expected benefits

to be derived from migration can be job and nonjob benefits, both of which have monetary and non-monetary components. Monetary job benefits reflect the expected lifetime earning differentials between working in the labor market of origin or in that of the alternative destination. Non-monetary job benefits are determined by a set of job characteristics, such as the physical work environment (toxic conditions, risk, noise, extreme temperature, etc.), type of work (heavy, highly repetitive, degree of independence, etc.), and accessory factors (breaks, cafeterias, etc.), which determine the quality of working life and job satisfaction. Nonjob benefits depend on the location preferences of the individual, and are based on the attractiveness of certain areas over others. These benefits can be monetary, such lower living costs and better welfare and unemployment benefits, and non-monetary, such as the existence of different public services (medical and health services, cultural amenities, educational institutions, etc.), environmental conditions (climate, pollution, etc.), and the style of life. The costs are conceptualized as opportunity (monetary) and psychic (non-monetary) costs. The former represent real resource costs or foregone opportunities as a result of migration. The latter, psychic costs, are not real resource costs. They are subjective and indicate the possible dissatisfaction associated with the move(break of cultural and family ties, preference for a familiar area, etc.). Needless to say, given that nonjob benefits as well as psychic costs depend on individual preferences, what is a cost for one individual may be a benefit for

another (i.e. an individual's separation from his family is a cost if he values family ties, and a benefit if he does not).

The Net Monetary Benefits of Migration

The net monetary benefits of migration will be the difference between monetary job and nonjob benefits and the opportunity costs of the move. The monetary benefits are the difference between the migrant's expected lifetime real earnings at j and the opportunity costs of the move from i to j (the opportunity costs being the sum of the expected lifetime earnings at i and the direct monetary costs of the move). Analytically:

$$\text{P.V. of } E(R_{ij}) = E(E_{jt}) - \left[E(E_{it}) + E(C_{pijt}) \right]$$

The individual's expected lifetime earnings, defined as the product of wages and the hours of work, will depend on the differences in wages and the amount of time one is employed. Assuming that the individual is employed in the present and will be during the rest of his active working life, and that the hours one is employed are conventionally determined or employer-prescribed (we can safely omit leisure as a decision variable)[9], the expected lifetime earnings will be a function of the initial earnings and the rate at which these earnings will grow during the rest of the active working life.[10] In other words:

$$\text{P.V. of } E(E_{ht}) = \int_{t_o=0}^{T} (E_{oh} e^{\alpha_{ht}}) e^{-rt} dt; \; \forall_h, \; i \neq j$$

Where $E(E_{ht})$ indicates the expected lifetime earnings in any market (h), $i \neq j$. E_{oh} indicates the initial earnings. α^h indicates the rate of growth of earnings (which will reflect job opportunities).

In this sense, we can conceive the decision to migrate from two perspectives. The first is to see migration as the process of alternative location of individual productive capacity (be it new or existing) to the market which pays it the highest. Here, migration, as an investment, does not represent an increase in the stock of human capital, but rather an alteration in the value of human capital. This is a consequence of the existence of different salaries (earnings) of equilibrium among alternative labor markets. There are various interrelated reasons for the existence of these differences. One is the lack of perfect information with respect to earnings in different labor markets. This makes the individual invest in information through a search process. Thus, migration is the search for those markets which pay the best for one's productive capacity. Another is the existence of costs associated with the move from one market to another. These costs can prohibit individuals from moving, with the result that salaries in equilibrium continue to be spatially differentiated. The existence of risk and uncertainty in migratory movements is yet another reason for the difference in wages. In this case, individuals generally underestimate the possible returns from migration, and as a result, there is less mobility than that which is necessary to equalize wages. The existence of monopoly conditions both on the side of

supply as well as demand, interferes in the functioning of a free labor market and can give rise to the existence of differential wages. Finally, the areas favored by economic cycles will have an excess in the demand for labor, resulting in higher wages in these areas than in those not favored by the cycles.[11]

The second perspective sees the decision to migrate as a form of investment tending to increase the stock of human capital, resulting in greater lifetime earnings. The underlying reason for the increase in the stock of human capital is the existence of different and better job opportunities among alternative labor markets (promotions, on-the-job-training, etc.). These opportunities will condition the potential life career of the individual, and as a result, determine his earning profiles.

Both forms of investment are not mutually exclusive and generally they will be taken into account by the potential migrant, so that the decision to migrate must be analyzed in a general context of investment in human capital.[12] Actually, the criterion of investment for both is the same: the investment will be economically efficient in terms of earnings if the discounted value of expected returns exceeds the discounted value of expected costs. Assuming the individual is employed at i and at j, the gross monetary earnings of migration can be expressed as:

$$\text{P.V. of } E(E_{ij}) = E(E_{jt}) - E(E_{it}) = \int_{t_o=0}^{T} (E_{oj} e^{\alpha jt} - E_{oi} e^{\alpha it}) e^{-rt} dt$$

In this expression, $E(E_{it}) - E(E_{it})$ represents the potential life-

time gross monetary job benefits associated with migration from i to j. This can be due to the higher pay given for a given productive capacity at j and/or for the increase of the lifetime stock of human capital. Alternatively, $E(E_{it})$ represents the income foregone or opportunity cost in terms of earnings of the move to j, and $E(E_{jt})$ indicates the opportunity cost in terms of earnings if he remains.

The potential differences in earnings should be conceptualized in real terms. Nominal differences, except when there is money illusion, do not imply a better economic situation for the potential migrant. As a result, the individual who does not suffer money illusion will adjust his earnings, taking into account the differences in the cost of living between i and j, when he decides whether or not to migrate.[13]

Together with earnings, costs make up the other part of net pecuniary benefits. The pecuniary costs or opportunity costs of migration are real resources that the individual gives up as a consequence of migration. Methodologically, we will break up opportunity costs into direct pecuniary costs and income foregone (even though direct pecuniary costs are also income foregone). The former can be identified as: a) transportation costs, which represent the direct outlays of the move, and whose magnitude will depend on distance; b) transition costs, which reflect the cost to the individual of food, shelter, housing, etc. until he is accommodated in the new area of destination. However, these are only costs when there is an increase of spending with respect to the old space; c) the possible

loss of money if the individual has to sell or rent properties that he had in the area of origin. Income foregone is the lifetime earnings the individual expected to receive if he remained at i. As we will see later on, the magnitude of the income foregone will depend on the alternative possibilities of employment (unemployment) at i and j. In summary, the net pecuniary benefits (assuming the individual was employed at i and has arranged employment at j) can be expressed as:

$$\text{P.V. of } E(R_{ij}) = \int_{t_o=0}^{T} (E_{oj}e^{\alpha jt})e^{-rt}dt - \left[\int_{t_o=0}^{T} (E_{oi}e^{\alpha it})e^{-rt}dt + \int_{t_o=0}^{T} C_{pij}e^{-rt}dt\right]$$

Other things being equal (non-monetary benefits and psychic costs), the individual will migrate if P.V. of $E(R_{ij})>0$, and will choose as his destination the market $j(j=1...n)$, where P.V. of $E(R_{ij})$ is the maximum. Thus, differences in real earnings will be a factor of attraction, and the individual will try to maximize them, while costs will be a deterrent, and he will try to minimize them.

The lifetime earnings that the individual can realize are conditioned by his possibilities of being employed during his active working life. As a result, a decisive factor in the decision to migrate will be the possibility of his being employed in the area of origin and in the area of destination, as well as of maintaining employment in both areas. When there is a lack of information, the possibilities of finding employment in the area of destination and

the possibilities of maintaining it during the rest of the active working life in both areas (origin and destination) are uncertain. As a result, the expected lifetime net pecuniary earnings will depend on the probability of finding and maintaining employment. If $g(t_o)$ is the probability of finding employment at t_o, given that the individual has not been employed at $t<t_o$, then the expected lifetime earnings at t_o will be:

$$\text{P.V. of } E(E_{ht}) = g(t_o) \int_{t_o}^{T} EE_{t_o h} e^{\alpha h(t-t_o)} e^{-rt} dt$$

Thus, the expected net pecuniary benefits of migration will be:

$$\text{P.V. of } \hat{E}(R_{ij}) = \int_0^T g_j(t_o) \int_{t_o}^{T} EE_{t_o j} e^{\alpha j(t-t_o)} e^{-rt} dt dt_o \; -$$

$$-(1) = \int_0^T C_{pij} e^{-rt} dt + \int_0^T E_{oi} e^{\alpha i(t-t_o)} e^{-rt} dt \quad \text{(if the individual is employed at i at t=0)}$$

$$\text{or } -(2) = \int_0^T C_{pij} e^{-rt} dt + \int_0^T g_i(t_o) \int_{t_o}^{T} EE_{t_o i} e^{i(t-t_o)} e^{-rt} dt dt_o$$

(if the individual is unemployed at i at t=0)

The individual will migrate if $\hat{E}(R_{ij}) > 0$ and will choose as his destination the place where $\hat{E}(R_{ij})$ is the maximum.

Even though we have considered that the decision to migrate is based on terms of permanent income calculations, the potential migrant, in general, will place a heavier weight on the immediate future since it is during this time after the move that the individual is most weak economically and since the unimmediate future

is less predictable.[14] As a result, the probability of finding employment at j in a relatively short period of time $(0-\hat{t})$ after migration, will determine the economic viability of migrating or not.[15] We can express the expected earnings at j as:

$$\int_0^t g_j(t_o)\int_{t_o}^{T} EE_{ot_oj}\, e^{\alpha j(t-t_o)}\, e^{-rt}\, dt\, dt_o$$

such that $\hat{t}$ for $t > \hat{t}$ implies $g(\hat{t})=0$. In other words, if the potential migrant thinks that he will not find employment before t, he will not move. In this sense, the probability of finding employment at j, or alternatively being unemployed for a short period of time $(0-\hat{t})$, may be better considered a reflection of costs or a barrier to the move rather than an adjustment factor in expected lifetime earnings.[16] Another factor which is relevant to the decision to move is whether or not the potential migrant is employed at i. If the individual is employed at i, and is uncertain of finding employment at j for a period of time, he will take into account the loss of the income at i which he would have earned had he not moved. Although the income foregone is only a part of the opportunity costs of migrating, and given that the individual is generally risk adverse, it can determine the decision to migrate. In summary, the pecuniary determinants of the decision to migrate are: initial earnings and their rate of growth, the possibilities of finding and maintaining employment, the cost of living differentials, the opportunity costs (direct pecuniary costs and income foregone), and the rate of discount (which indicates

the preference for time and the premium for risk and uncertainty).[17] If the present value of net pecuniary benefits is positive, non-pecuniary costs and benefits aside, the rational individual will move and will go to the labor market where these are maximized.

Figures (a) and (b) express the pecuniary costs and benefits graphically. Where i-i', j-j' indicate age earning profiles at i and j, respectively. In Figure (a), we have represented initial earnings at j greater than those at i, while in Figure (b), the reverse is shown. t_o is the moment (age) when the decision to migrate is taken. $\hat{t}$ is the moment the individual finds employment at j. $t_o - \hat{t}$ is the amount of time the individual will be unemployed at j. $t_o - \hat{t}$ will be equal to zero if he starts employment at j immediately ($\hat{t} = t_o$). T is the retirement age. A represents differences in lifetime earnings between working at j or i. B represents the income the individual gives up if he was employed at i and is unemployed at j until $\hat{t}$ (in Figure (b), B also includes the income the individual gives up as a consequence of the differences in earnings until m). C indicates the direct pecuniary costs of the move.

In any case, migration will be efficient from the pecuniary point of view if P.V. of $\left[A - (B+C) \right] > 0$.

Non-Monetary Benefits and Costs

The expected non-monetary benefits of migration represent consumption at zero cost of production, and they are derived from the work place and the location characteristics of the area of destina-

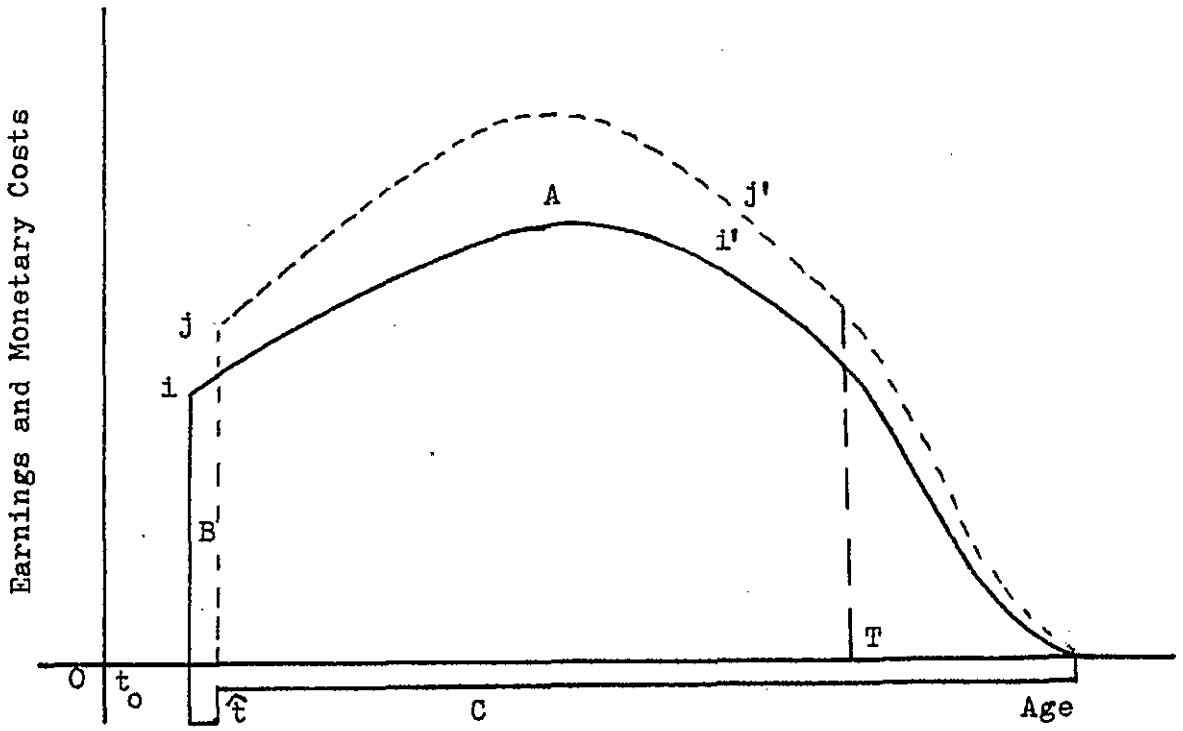


Figure (a)

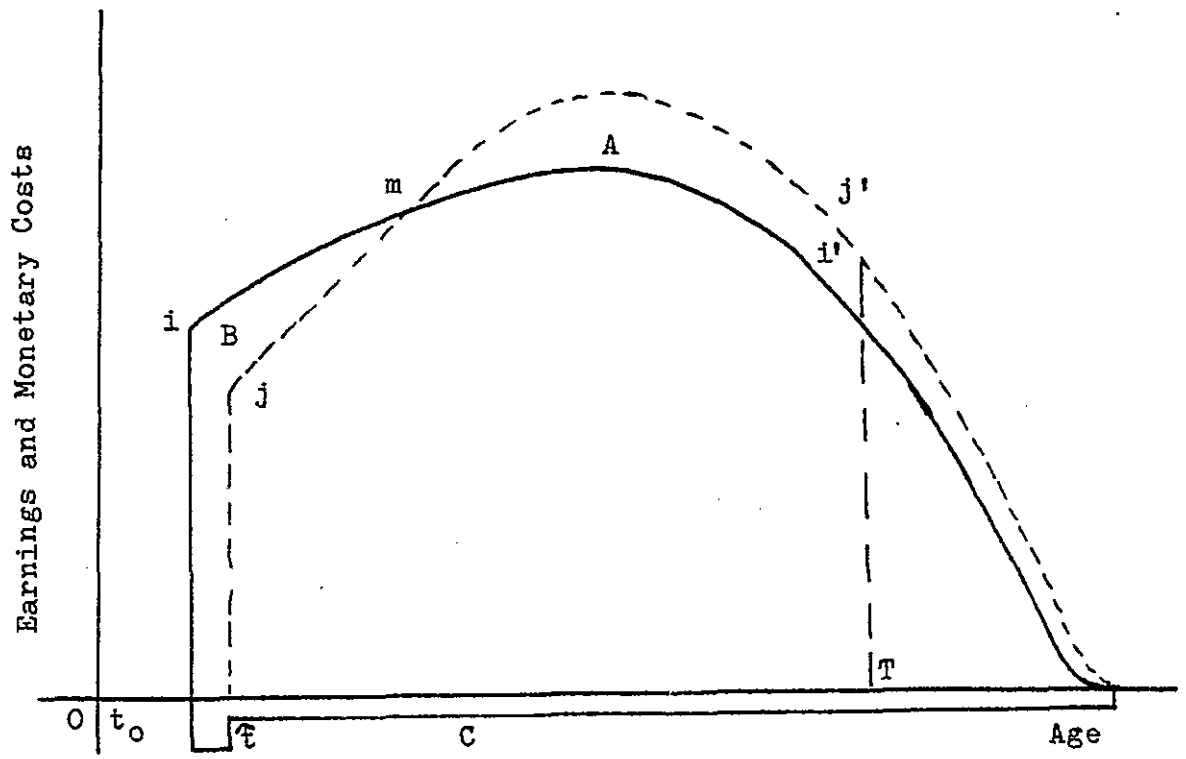


Figure (b)

tion. Since they may affect the welfare situation of the potential migrant, they may influence labor mobility.[18] Some of the non-monetary benefits are observable, such as climate, air quality, health care, educational opportunities, working conditions, etc., while others are not observable, such as life style, ethnic prejudices, etc. As there is no market for non-monetary benefits, these benefits cannot be monetarily quantified directly. Although some of them can be translated into financial terms by the potential migrant while others cannot, all of them are truly relevant to the migrant's final estimate of the value of migration and the choice of a destination area. The value of non-monetary benefits will depend on the locational preferences of the potential migrant, and he will internalize their value in the total benefits that he expects to receive from migrating. Because of the existence of non-monetary benefits, it is possible that the migrant will not necessarily move to the area of expected positive net monetary benefits, and that certain individuals with positive expected net monetary benefits will not even migrate.

Another non-monetary element in the decision to migrate is psychic costs. These are purely subjective and represent a loss of consumer surplus on the part of the migrant. They are a reflection of the subjective preference of the individual for a known environment and social as well as family ties. As a result, migration requires the disruption from this known environment and imposes a psychic cost. Although these costs do not represent real resource costs, they affect mobility and, as a result, influence the decision to migrate.[19]

Psychic costs and non-monetary benefits, though not real resources, can explain objective behavior (the decision to migrate or not, the place of work selected, and the choice of a destination area), and, thus, should become a separate variable to be identified and incorporated into explanatory analysis on their own.[20] Moreover, these factors may be important ones for a possible regulation of migratory movements. In addition, although they are not monetarily quantifiable, certain plausible hypotheses about their effect on migratory movements can be made in a function of certain spatial and individual characteristics. Technically, non-monetary benefits and psychic costs can be conceptualized as the compensating variation in income that would be necessary to make an individual indifferent between two competing locations.

Non-monetary benefits and psychic costs can be expressed as:

$$\text{P.V. of } E(NB_{ij}) = \int_{t_o=0}^{T} X_B(t)e^{-\hat{r}t}dt$$

$$\text{P.V. of } E(C_{psy}) = \int_{t_o=0}^{T} X_C(t)e^{-\hat{r}t}dt$$

respectively. Where NB_{ij} indicates the value of non-monetary benefits for the individual. $X_B=\sum_{n=1}^{N} X_{BN}$ represents the vector of N kind of non-monetary benefits. C_{psy} indicates the value of psychic costs for the individual. $X_C=\sum_{k=1}^{M} X_{CM}$ represents the vector of M kind of psychic costs for the individual. $\hat{r}$ is the subjective rate of discount for non-monetary costs and benefits.[21]

Finally, taking into account monetary as well as non-monetary factors, the individual will migrate if:

$$B_{ij}=\text{P.V. of } \left[E(R_{ij})+(NB_{ij}-C_{psy}) \right] > 0 \Rightarrow \text{P.V. of } E(U_{jt}) > E(U_{it})$$

and will choose as a destination the place where B_{ij} is maximum. In other words, the final decision to migrate will be based on the comparison of the potential migrant's real lifetime income or utility as a result of the move (allowing for discounted migration costs, both pecuniary and non-pecuniary) and his expected real lifetime income or utility if he decides not to move.

Explanatory factors of the decision to migrate

Having conceptualized the economic rationality of the decision to migrate in terms of expected costs and benefits, we can see that the determinants of the move will be those factors that affect the expected value of net benefits. These determinants can be found in the personal characteristics of the potential migrant, in the spatial location of opportunities, and in those intervening obstacles to migration.[22] Migrants are not a random cross-section of the whole population, but rather a select group of individuals differentiated from the rest by certain characteristics that allow them to react to and take advantage of economic opportunities. Considering that the probability of migrating will depend on the possibilities of maximizing the present value of expected net benefits, the characteristics of those potential migrants, as well as the spatial location of opportunities, reflect the maximum likelihood of achieving this objective.

As a result, what we will establish is how various personal and spatial economic circumstances dictate whether it will be likely for the individual to improve his well-being by migrating instead of remaining.

Age, level of education, occupation, employment situation in the labor market (employed, unemployed) and marital status are the personal characteristics which stand out for their importance in influencing the decision to migrate. Beginning with age, there exists empirical evidence that migrants tend to be of a younger age. This fact has a clear economic interpretation when we conceptualize migration as a form of investment. Since expected earnings from migration are for the rest of the active working life, the earlier the decision to migrate is made, the more years remaining in the active working life to collect the return of the investment, and the more time over which earning streams can amortize the costs of the move. This also explains why a smaller difference in earnings will still make it efficient for a younger person to move but not for an older one.[23] There are also certain indirect effects, which can explain the selectivity of migration with respect to age.[24] The following are the more important ones. There is less attachment to the place of origin for a younger individual, which will decrease psychic costs. There are fewer non-transferable pecuniary rights, such as seniority and other fringe benefits in the work place and less physical capital that the individual has to sell or rent upon moving. With respect to choosing life careers, the younger individual has more flexibility on

the basis of current conditions. Since experience at work increases with age (learning by doing), and migration generally implies not only a change in the place of work, but also the type of work, young people lose less in terms of training and experience than older people. It is recognized in labor studies that experience imposes a locking-in effect, which only a very sweeping change in rates of pay may offset sufficiently to induce a change in the type and place of work.[25] Finally, since the decision to migrate is taken under imperfect information, risk and uncertainty are costs which will affect the magnitude of the discount rate. The younger the individual, the lower the premium for risk and uncertainty, so that younger individuals will tend to migrate more than older ones. Risk adversion increases with age.[26]

Summarizing, without the need to turn to sociological or other hypotheses, migration tends to be selective with age, due to the fact that as an investment, it is more economically productive when it is taken at a younger age. Age is directly correlated with expected earnings and inversely with certain components of the costs of migrating. One factor which seems to favor older individuals rather than younger ones is that the former generally have more financial means to pay the costs of the move (wealth effect).[27]

The level of education is another factor that appears to affect the decision to migrate. Its influence on migration is particularly important for the level and adquisition of information on economic opportunities, for the wealth position of the individual, and for the size of the labor market where the potential migrant can offer his

productive capacity. Given that information on the distribution of economic opportunities generally is imperfect, those with more education usually have more information than those with less education as well as greater access to formal and informal channels of information at a lower marginal cost. As a result, for those with more education, the costs of migration decrease due to the decrease in uncertainty and in the time spent in the job search process.[28]

Since a direct relationship between education and wealth exists, and given that wealthy individuals are the ones who invest more in all forms of human capital (including migration), individuals with more education also tend to be those who invest more in migration.[29] Moreover, as earnings usually increase with age at a decreasing rate, and as the rate of increase and the rate of retardation tend to be positively related to the level of education,[30] a smaller difference of earnings will be necessary for an educated individual to move than for an uneducated one.

Finally, the size of the labor market at which the potential migrant can offer his services will influence in the decision to migrate. Generally, for individuals with more education (proxy for skills), the demand for their services is of a national character, while the demand for the services of those who are less educated is of a more local nature.[31] This is another reason for the possible selectivity of migration with respect to the level of education.

Directly related to the level of an individual's education is his occupation. Even though more educated individuals (highly skilled)

have a higher probability to migrate, their type of occupation can affect their propensity to migrate. In general terms, we can distinguish two types of occupation for highly skilled individuals (salaried and self-employed). Self-employed individuals (architects, dentists, etc.) have less of a propensity to move than salaried ones due to their clientele and the investment in equipment needed to carry out their profession.[32] Obviously, the type of occupation will also affect the mobility of less educated individuals. In this respect, salaried workers are more mobile than those who are self-employed (i.e. shop owners, etc.).

The type of on-the-job-training, general or specific,[33] that the individual receives can affect the propensity to migrate. Since general training is equally productive in many firms, while specific training is only productive in the firm at which it is received, the individual who receives general training will be more mobile than the one who receives specific training. We can say that workers with general training will stay in the firm in which they acquired it only if they earn at least the same amount as that which they could obtain elsewhere. On the other hand, the individual with specific training is not as free as an individual with general training, since a move will decrease his productivity, and as a result, his earnings.[34]

The situation of the potential migrant in the labor market (employed, unemployed, or new entrant) is related to the incentives for and means of migration.[35] The unemployed individual has as a principal motivation the search for a job, and generally has less funds

to migrate than an employed individual (although the former's income foregone will be less). The employed individual has earnings as a principal motivation, except when he is dissatisfied with his current occupation. A priori, unemployed individuals or new entrants will have more of a propensity to migrate, due to the importance of having a job for lifetime earnings. However, we must take into account whether the unemployed individuals are skilled or unskilled[36] and whether they are in a market with a high or low aggregate level of unemployment.[37] The unemployed individual who is unskilled will have less of a propensity to migrate due to fewer funds and the local character of the demand for his services. If this individual is in a market with a high level of aggregate unemployment, his chance of finding employment in this market is relatively low. As a result, the expected opportunity costs of waiting to find employment will be great. Thus, independently of the limitation of funds and the local character of the demand for his services, he will tend to migrate. In general, the destination chosen will be the unprotected sector in a large urban industrialized area. On the other hand, the unemployed individual who is skilled will have a high propensity to move since he has more funds and his labor market is more national in character. This individual will tend to go to a market with a low aggregate level of unemployment. In summary, we can say that unemployed individuals will have a greater tendency to migrate than employed individuals. Among the former, the skilled individuals will be more mobile than the unskilled.

The form in which we have expressed the previous theoretical explanation is based on the individual as a unit of decision. However, a large proportion of the total number of migrants is families. This theory permits us to introduce the family as a unit of decision and still maintain the conceptual framework and the criterion of rationality.[38] The determinant factors will remain the same, although there exist certain peculiarities that will have to be explained. The family's decision to migrate will depend on the expected benefits and costs for the whole family, which will vary according to the number of members and composition of the family (i.e. number of members who work, age and schooling of dependents, etc.). If we consider the husband to be the principal migrant, it will be important to see whether or not the wife (i.e. the secondary migrant, because she follows the decision of the principal migrant) also works, in order to analyze the propensity of families to migrate. If the wife works, the decision becomes complicated, since it is less probably that both will improve their expected lifetime earnings by moving to the same destination area.[39] Moreover, the potential loss of the secondary migrant's earnings will affect the family's total earnings, so that even though the husband may earn more in another labor market, it may be economically more efficient for the family to remain if the objective is to maximize the benefits of the entire family.[40] From the point of view of the efficient allocation of resources, psychological costs aside, if both husband and wife work, the situation will generally be more efficient if each one offers his or her services to that labor market which pays

more. Obviously, this would imply the separation of the family, which, if not wanted, would prevent migration in spite of pecuniary benefits. As a result, we see that non-pecuniary elements can explain objective behavior.

Another element to take into account when dealing with the family as a unit of decision is family size. The number of family members will affect the cost of the move, with the result that the bigger the family, the lesser the mobility. A relevant factor in the interpretation of family migration is the age of the children, particularly if they are of school age (less than 17 years). When a family with school-age children moves, the education of the children is disrupted, and this is counter-productive in their formation. Given that the major function of the family as a social institution is the building of the childrens' human capital,[41] these families would tend to be less mobile.[42] However, if the quality of education and the possibilities of obtaining it vary spatially, it is possible that the education of children will be a determinant in family migration.[43]

Finally, some analysts have considered sex as an element in the decision to migrate and in the choice of a destination area. This is due to the different impact that the same variables have on primary migrants of different sexes.[44] It is not that economic rationality or objectives are different, but that institutional factors make women react differently from men.

In conclusion, by conceptualizing the decision to migrate as an investment in human capital, we see that certain characteristics of

the individual (age, education, occupation, employment situation, and life cycle) affect the probability to migrate due to their influence in the expected net returns of the investment. Needless to say, even though we have studied these characteristics separately in order to facilitate the analysis, they are actually interrelated. This explains why not all young or educated people migrate, and why some older individuals do, etc. The interdependence of several characteristics ultimately decides if migration is a rational economic decision for the individual. The relative importance of each factor is an empirical question.

Just as there exists a selectivity of migrants according to their personal characteristics, there also can be observed a tendency for certain areas to have in-migration and for others to have out-migration (we will discuss this in more depth when dealing with migration as an aggregate phenomenon). The reason for this can be found in the different opportunities (economic and non-economic) that exist in different areas for maximizing the lifetime real income of the individual. The individual will go to those areas in which he can improve his life career and in which there are more possibilities for employment, higher wages, and better nonjob benefits. Independently of the conditions of the labor market, the individual who has perfect information will move to that area in which he will maximize his expected lifetime real income. For those individuals who do not have perfect information, migration is the process of searching for an area in which he can improve his welfare situation (employment,

higher wages, better nonjob benefits, etc.). The optimal search process for the potential migrant will depend on the opportunities available in alternative labor markets. In this respect, the size of the local labor market, as well as the industrial occupational structure of the alternative areas are indicators of the opportunities that one can expect to find. Large labor markets offer more varied types of employment opportunities and also a greater variance in wage distribution. Since the expected pay-off to sampling depends on the mean and variance of the distribution of both employment and wage (earnings) possibilities, the individual with uncertain information will find it less of an economic risk (i.e. more efficient) to migrate to a large labor market.[45] Moreover, due to the economic dynamics of the large labor market, it is the one which offers more of a variety of jobs and, accordingly, the possibility of changing one's career is increased. In addition, it is in this market where the secondary or unprotected sector is more developed, so that it may be an attraction to unskilled workers.

With respect to nonjob opportunities, the individual will move to the area which offers those services (children's education, health care, welfare benefits, etc.), environmental conditions (weather, air quality, etc.) and style of life which satisfy his location preferences. Empirically, if the preference hypothesis is to meaningful, it must be related to observable and quantifiable variables. Analytically we can say that the individual will move to that area which will satisfy his location preferences, given the equality of the expected net

pecuniary returns from migration.

The Choice of a Destination Area: the Role of Information

Information is costly and, thus, the amount one can acquire is constrained. Therefore, there is almost always a lack of perfect information, and the decision to migrate and the choice of a destination area are then made with uncertainty. The rational individual will try to minimize the risk and uncertainty premium, so that among the alternatives available, he will choose as a destination that area in which it is more likely that he will maximize net expected benefits from migration. The minimization of uncertainty will depend on the information that the potential migrant has. As we have already mentioned, the level of education and the size of the labor market in the area of destination are factors which tend to decrease the potential migrant's degree of uncertainty. There exist other factors, particularly distance and the stock of migrants (friends and relatives that the individual has in the alternative destination area), that also affect the individual's degree of uncertainty and his choice of destination.

According to empirical evidence, migrants in all countries tend to move to a destination located at the shortest possible distance from their origin, benefits of the move held constant.[46] Distance, as an explanatory factor in the choice of a destination area, appears to be the most important variable. It is a proxy variable that encompasses different components of the costs of migration (transportation costs,

costs of separation from family and friends, decrease in information, intervening opportunities, etc.), and its influence in migration has received different interpretations. Before analyzing these interpretations, it is important to point out that empirical investigations, by comparing the trade off between distance as an index of cost and income as an index of benefits, show that the coefficient of distance represents something more than transportation costs.[47] By being aware of this, it is possible to interpret the effect of distance in different ways. If we assume that psychic costs are due to the separation *of the migrant from family, friends, and a known environment*, the greater the distance the higher the psychic costs. This is not only due to the separation itself, but also the expense of making visits to the point of origin. Thus, distance is a proxy variable for psychic costs.[48] Another interpretation is to consider distance as a proxy variable for information. In this sense, the greater the distance, the less information the individual has, and the higher the level of risk and uncertainty. As a result, since the individual will try to minimize the level of risk and uncertainty, he will move the shortest possible distance.[49] The final interpretation considers that the number of intervening opportunities increases with distance, so that the individual's foregone opportunities increase as distance increases. Therefore, the individual will tend to move the shortest possible distance.[50]

Even though these three interpretations are not mutually exclusive, analysts have tried to see which of them is the strongest.

The interpretation of distance as a proxy for information has been examined by using the level of a potential migrant's education as an indicator of his amount of information. Since information increases with the level of education, if the deterrent effect of distance decreases as the level of education increases, then distance is a proxy for information.[51] The interpretation of distance as a proxy for psychic costs has been examined by using age as an indicator of psychic costs. Since social and family ties increase with age, if the deterrent effect of distance increases with age, then distance is a proxy for psychic costs.[52] Finally, the intervening opportunities hypothesis has been examined by introducing as an explanatory variable a certain measurement of the opportunities surrounding the area of origin. According to this hypothesis, the number of people going (s) distance from a point is directly proportional to the number of opportunities on the perimeter of a circle with a radius (s) and inversely proportional to the number of opportunities on or within that circle.[53] In such a case, distance can be a proxy for intervening opportunities. Needless to say, as neither psychic costs nor information levels can be directly observed, empirical evidence based on indirect tests is only illustrative and not definitive. By looking at the empirical studies that have already been carried out for different countries, we can make some generalizations about the explanatory power of these interpretations: a) the coefficient of distance decreases appreciably when the level of education increases;[54] b) age does not significantly alter the magnitude of the coefficient of distance;[55] c) the

variable of intervening opportunities has resulted significant in empirical analyses; and d) by introducing the variables of both physical distance and the intervening opportunities, the magnitude of the coefficient of distance decreases, even though it continues to be significant.[56]

Since physical distance comprehends the variable of intervening opportunities, and age does not significantly alter the distance coefficient, then, on the basis of these indirect tests, the more convincing hypothesis is that distance is primarily a proxy for information. The negative sign of the coefficient of distance indicates, though not exclusively, the adversity to risk and uncertainty on the part of the migrant.

The stock of migrants plays two roles in migration. It is a direct source of information for prospective opportunities in the destination area, so that it decreases uncertainty. It also facilitates the transition costs of the move. Thus, the potential migrant will tend to move to those areas in which there are migrants from his point of origin. Empirically, this variable has been significant in different analyses, which is an indication of the importance of information in the choice of a destination area. At the same time, in those analyses which have introduced both physical distance and the stock of migrants, the absolute value of the coefficient of distance decreases.[57] This reflects the plausibility of the information hypothesis in interpreting the deterrent effect of physical distance.[58]

The relationship between information, psychic costs, and the deci-

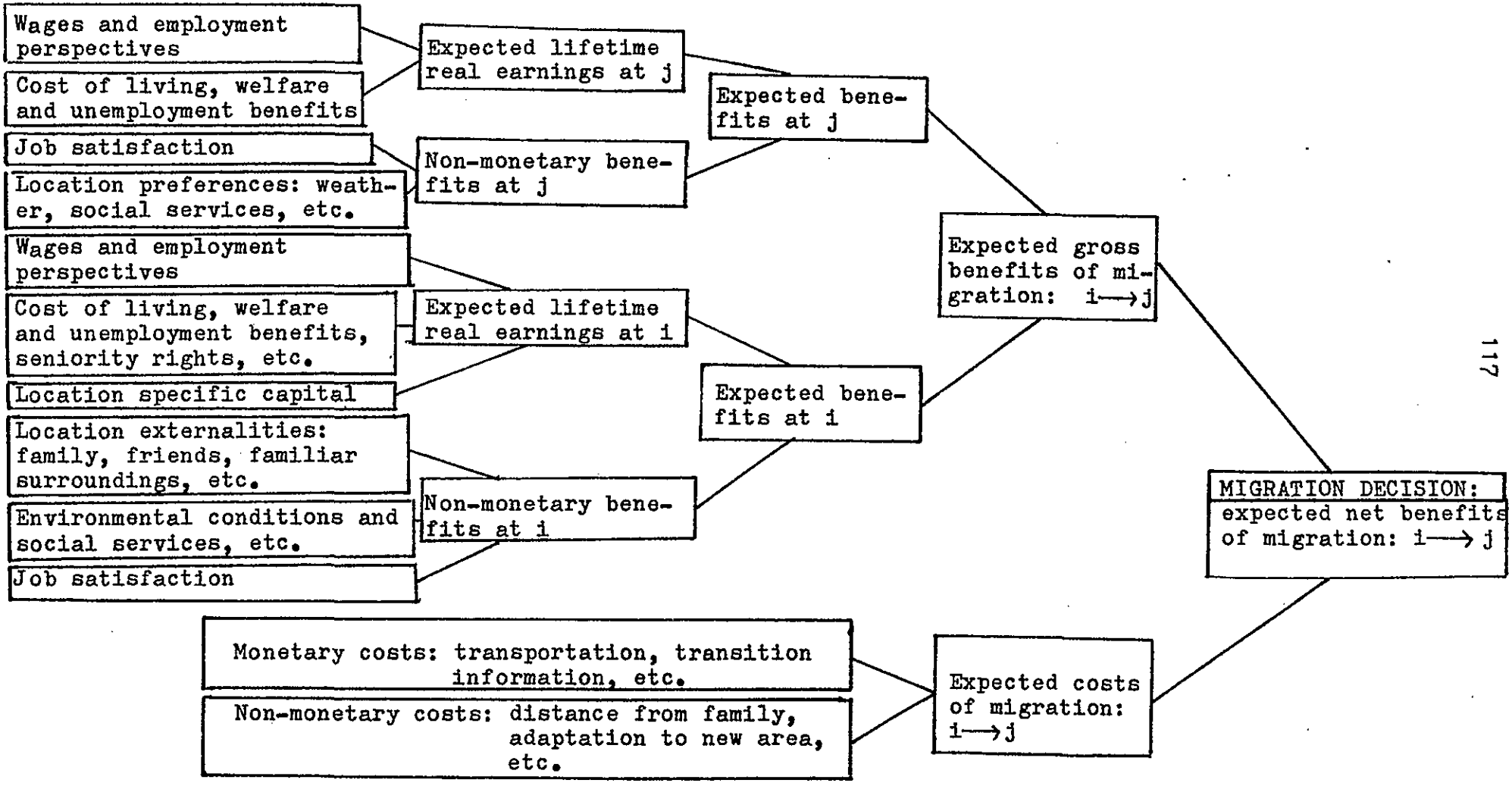
sion to migrate varies with the type of migrant (new, return, and repeat). Implicitly in our explanation, we have assumed that the initial decision is optimal and, as a result, permanent. Even though it is possible that the individual may base his decision thus, reality shows us that a proportion of migrants return to their area of origin while others change their destination several times. Although the theoretical framework that we have presented is still valid in order to analyze the determinants of migration for these different types of migrants, it is necessary to be aware of them, since the importance of the determinant factors of the decision to migrate may vary according to type.[59] Basically, there exists a difference in the level of information and in the psychological costs of the different migrant types. It seems that return migrants will have more information and less psychic costs than new migrants, since they already know the place they are going back to. In the case of the repeat migrant, this type will have more experience in adapting to a new situation, and, thus, the psychic costs of migration will tend to be less than for a new migrant. At the same time, since migration can be considered a learning process, the repeat migrant will have more knowledge of obtaining information at a lower marginal cost.[60] As a result, the deterrent effect of distance will tend to decrease with the type of migrant, in this order: return, repeat and new.

Summary

If we look at migration from an economic point of view and con-

sider it to be a form of general investment in human capital, the principal objective of the migrant will be the maximization of lifetime net benefits (pecuniary and non-pecuniary). As a result, the determinants of the decision to migrate will be those that make it more likely for the individual to achieve this objective. The chart on page 117 illustrates the determinants of migration that can be deduced from the theoretical framework used in our analysis. We can also deduce the following hypotheses from the theoretical analysis. First, with respect to the personal characteristics of the potential migrant, the propensity to migrate increases directly with the level of education skill and inversely with age. Second, regarding the potential migrant's situation in the labor market, the unemployed individual will be more prone to migrate than the employed one. In addition, among the unemployed, the skilled workers will be more prone to migrate. Third, with respect to labor market characteristics, the potential migrant will go to the labor market where the opportunities of employment and wages will be better than in his present labor market. Finally, with respect to information, the individual will tend to move to the closest area to his point of origin, to areas where he has friends and relatives, and to large labor markets.

Framework for the Analysis of the Decision to Migrate[61]



Expected Costs and Benefits of Migration

Decision	Expected Benefits		Expected Costs	
	Monetary	Non-Monetary	Monetary	Non-Monetary
Migrate to j	Mean wages (j) Security of earnings (j) Transfers (j) Investment opportunities, migrant and family (j)	Job satisfaction (j) Environmental conditions (j) Public goods and social services (j)	Mean wages (i) Security (i) Transfers (i) Investment opportunities (i) Transportation costs (i→j) Information costs (i→j) Value of location specific capital (i)	Job satisfaction (i) Environmental conditions (i) Public goods and social services (i) Living in strange surroundings (i→j) Need to use a new language (j) Distance from family and friends (i→j) Reduction in social status (j)
Remain at i	Mean wages (i) Security of earnings (i) Transfers (i) Investment opportunities, potential migrant and family (i) Information about the area (i) Location specific capital (i)	Job satisfaction (i) Environmental conditions (i) Public goods and social services (i) Familiar surroundings (i)	Mean wages (j) Security of earnings (j) Transfers (j) Investment opportunities (j)	Job satisfaction (j) Environmental conditions (j) Public goods and social services (j)

MIGRATION AS AN AGGREGATE PHENOMENON

The preceding theory is a micro foundation of the migration decision and identifies the factors that make it likely for certain individuals to migrate with the objective of maximizing net expected benefits. Even though migration is an individual phenomenon - people's disposition to move appears to depend on personal thresholds that govern their capacity to act on their preferences and intentions[62] - it is analyzed from an economic perspective as an aggregate phenomenon primarily for two reasons. The first is that, in general, the data available refer to the flow of migrants among predefined spatial units. The second reason for studying migration in this way is due to the economic policy implications of migratory movements. The analysis of the determinants of migration, considered as an aggregate phenomenon, is more directed to the question of whether migration can be altered by the usual public policy instrument.[63]

From an aggregate point of view, the unit of analysis is the flow of migrants from one area to another. The objective is not to outline variables affecting the propensity to migrate, but rather to associate the magnitude, composition, and direction of migratory flows, which have already occurred, with a set of variables that reflect the economic reason for the magnitude of flows among geographic areas. Since the unit of analysis in the aggregate phenomenon is the average or representative individual, the theoretical foundation used to identify the determinants of migratory flows is found in the microeconomic analysis of migration. Starting with the model of individual

decision, one can deduce properties of population choice behavior which can be subject to empirical tests. In other words, given the distribution of the factors, among population and spaces, that determine the individual's propensity to migrate, one can make inferences about aggregate migration probabilities.[64] Assuming that what is true for the aggregate is likely to be true for the typical individual, the explanatory economic variables of population flows among spaces will be found in the characteristics (demographic, educational, economic, geographic, etc.) of the areas of origin and destination, as well as in the intervening obstacles (distance, etc.), both of which will make select groups of the population, divided by age, education levels, etc., react to the unequal spatial distribution of opportunities. Even though both the micro and the aggregate explanations are complementary, the study of aggregate movements of population has certain peculiarities that require a separate analysis. In addition, there are certain facts that appear in the aggregate phenomenon that do not appear in the individual phenomenon, such as the bidirectionality of the movements and the possible simultaneity of economic opportunities and migration.

The explanatory variables of the flow of migrants from one space i to another j will be those which indicate the areas in which it will be more likely for the representative individual to maximize his expected net benefits. Since the maximization of net earnings represent an important, if not the most important component of net benefits, the representative individual will move to those areas in which

he can reach this objective. In this sense, average earnings, or the relative difference in average earnings, in the different local labor markets will be indicative of the earnings that the average individual will be able to obtain by migrating to any area. As a result, migrant streams will go from labor markets with low relative average earnings to those with higher average earnings. This does not imply that the earning possibilities of a set of migrants are determined in a fixed way by the average earnings that exist in the different labor markets. Earning possibilities will depend on the personal characteristics of each individual. What it does imply is: a) if a labor market j has higher average earnings than a labor market i, it may be true that for most people, their individual earning prospects are better in j than in i; b) the higher the average earnings in a labor market j, compared to i, the more likely it is that persons in i have better earning opportunities in j and will migrate to j. Conversely, the less likely it is that persons in j have better opportunities in i and will move to i.[65] Or:

If $E_j > E_i > E_k$, then $p(e_j > e_i) < p(e_j > e_k)$ and $p(e_i > e_j) > p(e_k > e_i)$

where E represents average earnings, and e represents the earning prospects of the individual. j, i, k are alternative markets.[66]

As earnings are the product of hours of work and wages, these two variables determine the rate of expected earnings, and they will play a role in the explanation of migratory flows. Although both variables are jointly determined in the labor market by the supply and demand for labor, analytically it is interesting to deal with

them separately.[67] Average wages reflect the remuneration for the individual's productivity, so that migrants will go to those markets in which wages are highest. For the study of migratory flows, it is also important to analyze wage distribution in each labor market. It is possible for two markets to have equal average wages, but to differ in the variance of wages with respect to the mean. As a result, this variance may offer an incentive to migration, independently of the equality of average wages (this also applies to earnings).[68] Actually, different distributions of wages in markets with equal average wages reflect the fact that average wages according to occupations are different. Thus, it is in those occupations with different average wages among markets in which incentives for migration exist. Because of this, it will be necessary to control the flow of migrants by occupation, as this would avoid aggregate bias in the analysis.

With respect to hours of work as an element that conditions the rate of earnings, the flow of migrants will be directed from labor markets with low opportunities of employment to those with better opportunities. Different variables can be indicative of average employment opportunities. The ones that reflect the situation of the labor market are: the unemployment rate, the rate of unfilled vacancies, and the rate of growth of employment. The unemployment rate is one of the variables commonly used to explain migratory flows. By considering this variable as an indicator of the looseness (high rate of unemployment) or thickness (low rate of unemployment)

of the labor market, it can be inferred that the flow of migrants will go from labor markets with unemployment rates that are relatively high to markets with rates that are relatively low. Although unemployment reflects the situation of the labor market, when it is seen in isolation, it does not reveal the entire picture of the labor market. First, there exists a direct relation between the rate of unemployment and the characteristics of the unemployed. In general, the unemployed are predominantly young, unskilled, and female. As a result, the unemployment rate as an indicator of the labor market situation refers primarily to this specific group of the population. Second, there can and do exist job vacancies in markets with high rates of unemployment, since the pool of unemployed individuals does not fit the job requirements. Thus, the rate of unemployment should be accompanied by other indicators in order to reflect employment opportunities in different markets.

Another indicator, which, from the aggregate point of view, reflects employment opportunities is the rate of employment growth. The probability of finding employment will depend on the rate of new jobs and unfilled vacancies with respect to the pool of unemployed individuals and new entrants in the labor market.[69] As a result, the flow of migrants will go from those markets with relatively high rates of unemployment and low rates of employment growth to those with relatively low rates of unemployment and high rates of employment growth. It is interesting to relate the probability of finding

and maintaining employment with the objective of maximizing permanent income. In this respect, it is possible that, independently of the fact that the individual may not find employment in the destination area in a relatively short time after migration (assuming that he will find and maintain it later on), the individual will maximize his permanent income due to the difference in wages between the areas of origin and destination. Thus, the migrant will still be economically rational if he goes to a market in which he is at first unemployed but in which he maximizes his permanent income. This explains the fact that in certain countries, primarily in those with strong wage discrepancies between urban and rural areas, there exist significant migratory flows toward urban areas that have relatively high rates of unemployment.[70] The probability of finding and maintaining employment will depend on the personal characteristics of the migrants. Thus, it is important, as we said before, to point out that skilled migrants have a national labor market for their services, while unskilled migrants have a more local labor market, so that in the interspatial flow of migrants, skilled workers will predominate. However, since unskilled workers are more affected by unemployment than skilled workers, and since to be unemployed represents an incentive for migration, the areas affected by high rates of unemployment will be those with high rates of out-migration. As the services of unskilled workers will be in more demand in the secondary labor market (unprotected sector), and as these markets are more developed in large urban areas (big cities), we can infer that the

large labor market attracts these workers. Moreover, the large labor market has a more dynamic industrial and occupational structure and will be attractive to all types of migrants. We can say that the size of the labor market will be indicative of the direction of migratory flows, and that migratory flows will go from small to large labor markets. In addition, the large and more dynamic labor markets are the ones which offer a greater number and variety of employment opportunities, as well as better wages, with the result that the individual will have a greater chance of improving his life career.[71]

Other potential benefits of migration are nonjob benefits, which can be obtained in the area in which one works. Even though they depend on the subjective preferences of each migrant, from the aggregate point of view we can conceive the existence of collective preferences for certain goods (welfare benefits, cultural amenities, etc.), environmental attributes (climate, air quality, etc.), and a certain style of life. Given that these goods and services are not evenly distributed spatially, people will prefer to move to those areas in which these attributes are located. As a result, the location of these goods and services in different areas can be an explanatory element in migration flows.[72] Evidently, from an empirical point of view, the significance of collective locational preferences will depend on the possibilities of relating these preferences to observable and quantifiable variables. In this sense, there are two ways of approaching the problem. One is to introduce an in-

dex of the attractiveness of the different areas on the basis of indicators of social well-being. The other is to introduce proxy variables that reflect the attributes of different areas, such as average temperature, welfare benefits, etc.[73] The problem that one can presumably find is the correlation between the variables that compose these indexes and those that reflect economic opportunities. Thus, even though analytically it is important to point out the relevance of location preference, empirically, for the moment, it will be necessary to make strong simplifications, due to the difficulty in quantifying the variables that indicate the attributes of the different areas. In the literature, the factors that have been studied as indicators of location preference have been climate, urban size, and welfare payments-unemployment compensation. Warm climates have been explanatory in the direction of migratory flows. Migrants tend to go to warm climate areas.[74] Welfare payments and unemployment compensation have not resulted as significant variables.[75] Finally, urban size, particularly big cities, has been significant as a determinant of the direction of the flow of migrants.[76] However, the explanatory value of urban size must be taken with precaution, since it is directly correlated to the size of the labor market, to industry and to occupational structure. As a result, we do not know for which of these explanatory variables urban size is a proxy variable.

Since migrants try to minimize the different components of cost (information, psychic costs, and opportunity costs), the flow of migrants will tend to move to the closest area in which opportunities

can be found. If we consider distance as a proxy variable for information, psychic costs, and transportation costs, we can say that the flow of migrants will go to the shortest distance possible from the point of origin. With respect to information, another element which is relevant as an explanatory variable of migratory flows is the number of migrants residing in the alternative areas of destination who originated from the same area as the potential migrant. This variable (stock of migrants) is a proxy variable for information and transition costs. Migratory flows tend to take place largely within well-defined streams. The flow of migrants will tend to move to places where other streams of migrants moved before.[77]

Also related to the cost of movement are the different languages that are spoken in a country. If the migrant chooses as his destination an area in which a language other than his own is spoken, he will be obliged to learn this language in order to function properly. This represents a cost (learning the language and adaptation) that the individual will try to minimize. As a result, other things being equal, migratory flows will tend toward places where the same language is spoken.

Other factors related to the flow of migrants are the demographic composition and the education level of the different areas. Among the possible demographic factors, the average age of the population in different areas is the one that stands out for its potential explanatory power. Given that the propensity to migrate decreases with age, those areas which have a greater percentage of the population in

the more mobile ages (20 to 35 years), will be areas of higher rates of out-migration. Not only does age affect the rate of migration, but also the significance of the explanatory variables (earnings, distance), which varies with the age of migrants. Thus, when studying migration as an aggregate phenomenon, it will be necessary to divide the flow of migrants by mutually exclusive age categories in order to avoid aggregation bias.[78]

Education, a proxy variable for skill, affects migratory flows in two ways. First, individuals with more education are more mobile due to their having more information and to the national demand for their services. As a result, areas with more educated people will tend to have greater rates of out-migration. Second, the level of education of one area, which is correlated to industry and the occupational structure, is an indicator of the possibilities of improving the lifetime career of the individual, and, thus, will attract flows of migrants. In addition, when the family is the unit of migration, the quality and possibilities of education in different areas will also be an element of attraction. These two effects move in opposite directions, the reason being that education is a stock and migration is a flow. Thus, a priori, one cannot say which of the two will be dominant. It is an empirical question.[79] There are two ways to control the effect of education empirically. One is to divide the flow of migrants by educational categories and to see how the explanatory variables affect the movement of these categories. The other is to study gross in-migration and gross out-migration sep-

arately, in order to see how the education levels of the different areas can affect these two different movements.

In order to summarize, the previous analysis gives us the theoretical framework for the identification of the determinants of migratory flows on the basis of economic rationality. The magnitude of migratory flows from one area i to another j in a country depend on the economic opportunities available in the areas of origin and destination, on intervening obstacles, and on the demographic and economic characteristics of the population in the different areas. In addition to that, other factors that may affect migratory flows are the location characteristics of the areas. The following hypotheses can be deduced from the previous analysis. With respect to earnings, the flow of migrants will go from areas with a relatively high rate of unemployment, relatively low wages, and a lack of employment growth, to areas with a relatively low rate of unemployment, relatively high wages, and a dynamic employment growth. Regarding intervening obstacles, the flow of migrants will go to areas closest to the area of origin, to areas in which previous migrant streams have already gone, and to large labor markets. In relation to demographic characteristics, areas with younger individuals will have higher rates of out-migration. In regards to education, areas with above-average levels of education will have high rates of out-migration. At the same time, such areas will probably attract migrants, so that the final effect is an empirical question. Finally, by dividing the set of migrants into mutually exclusive age categories and

education-skill categories, the deterrent effect of intervening obstacles will decrease with age and with the level of education, respectively.

The Bidirectionality of Migratory Flows and the Problem of Simultaneity

The bidirectionality of migratory flows and the simultaneity of these flows and economic opportunities are two peculiarities that require an additional explanation when studying migration as an aggregate phenomenon, but not when studying it as an individual phenomenon. Bidirectionality signifies that in one geographic area, and for a given time period, in-migration and out-migration coexist (M_{ji} and M_{ij}).[80] According to the theoretical explanation of aggregate migration, the flows should be directed from those areas with relatively few economic opportunities, to those with relatively more economic opportunities. Reverse flows, a term which indicates that movement is from areas with economic opportunities to areas with a lack of opportunities, represent, a priori, an anomalous fact with respect to the underlying theory. This phenomenon is explained by the fact that labor input is not homogeneous with respect to the determinants of migratory movements. Also, the existence of a population with differing preferences, and the availability of alternative consumption bundles, may make individuals with the same net potential income move to different areas.[81] Return and chronic migrants also explain the existence of reverse flows.[82] The appearance of reverse flows does not invalidate the underlying theory when these peculiarities are taken into account.

In order to avoid aggregation bias, empirically it will be necessary to divide the set of migrants by groups according to homogeneous categories (skill-occupation, age, type of migrant - new, return, chronic -, etc.), and to study in-migration and out-migration flows separately.

Simultaneity refers to the fact that economic opportunities affect and are affected by the flow of migrants. The problem that arises is to see up to what point it is the economic opportunities of an area that create the flow of migrants, and up to what point it is the flow of migrants that affects these opportunities. If migratory flows are due to the changing rhythm of economic opportunities in different areas, and if these flows encourage the creation of economic opportunities in the areas of origin and destination, then migratory flows are caused by economic opportunities and are themselves the cause of these opportunities. As a result, when studying the determinants of migratory flows, simultaneity has to be taken into account in order to avoid confusion between cause and effect.

The relevance of simultaneity will depend on the length of the period of analysis. The influence of migratory flows in economic opportunities requires a certain amount of time, which can be neither excessively short, since the volume of in and out-migrants would be relatively insignificant, nor excessively long, since the possibility of counter flows (population as well as capital) would modify the spatial location of economic opportunities.

The problem of simultaneity has recently received the attention

of analysts of the determinants of migratory movements. The results of these works bring forth the following: simultaneity exists for time periods of five to ten years, and affects the explanatory value of different variables. However, its importance is relative.[83] With reference to specific economic determinants, the results of simultaneous models show that the possibilities of employment attract migrants at the same time that the flow of migrants generates employment possibilities. They also show that income is a determinant of migratory flows (areas with high incomes attract migrants, while areas with low incomes expel migrants), and that migratory flows affect the rate of income growth. Thus, the simultaneity of migratory flows and economic opportunities has to be taken into account in order to analyze the determinants of migratory flows, especially when the analysis covers a period of five to ten years.[84]

Footnotes

[1]Most studies on migration have dealt with the determinants rather than the consequences of the phenomenon. See Michael J. Greenwood, "Research on Internal Migration in the United States: A Survey," Journal of Economic Literature, June 1975, pp. 397-433. R. Paul Shaw, Migration Theory and Fact: A Review and Bibliography of Current Literature (Philadelphia: Regional Science Research Institute, 1975).

[2]Joseph S. Berliner, "Internal Migration: A Comparative Disciplinary View," in Internal Migration, A Comparative Perspective, ed. Alan A. Brown and Egon Neuberger (New York: Academic Press, Inc., 1977), pp. 443-61.

[3]There are a number of surveys that confirm this idea. J.B. Lansing and E. Mueller, eds. The Geographic Mobility of Labor (Ann Arbor: Survey Research Center, Institute for Social Research, University of Michigan, 1967), find that in U.S. internal migration, 58% of the migrants moved because of purely economic reasons, 14% moved because of partly economic reasons, 23% gave non-economic reasons, and 5% gave no reason. J.C. Elizaga, "A Study of Migration to Greater Santiago, Chile," Demography, 1966, pp. 352-378, found that 60% gave work-related reasons for migration. A.J. Fielding, "Internal Migration and Regional Economic Growth: A Case Study of France," Urban Studies, 1966, pp. 200-214, found that more than 50% gave economic reasons for migrating. H.S. Shyrock, Population Mobility within the United States (Chicago: University of Chicago Press, 1964), found that 50% gave work-related reasons.

[4]See Lorene Y.L. Yap, "The Attraction of Cities, A Review of the Migration Literature," Journal of Development Economics, 4, 1977, pp. 239-64. Michael P. Todaro, Internal Migration in Developing Countries (A Review of Theory, Evidence, Methodology and Research Priorities) (Geneva: International Labour Organization, 1976). Michael J. Greenwood, op. cit.

[5]Larry A. Sjaastad, "The Costs and Returns of Human Migration," Journal of Political Economy, Supplement, Oct. 1962, pp. 80-93. Larry D. Schroeder, "Interrelatedness of Occupational and Geographical Labor Mobility," Industrial and Labor Relations Review, 1976, pp. 405-11.

[6]As dealt with by Gary S. Becker, Human Capital, A Theoretical and Empirical Analysis, with Special Reference to Education, Second Edition, (New York: N.B.E.R., Columbia Univ. Press, 1975). Theodore

W. Schultz, "Investment in Human Capital," American Economic Review, 1961, pp. 1-17.

[7]Larry A. Sjaastad, op. cit., formalized the first model of migration as an investment in human capital. The following made theoretical contributions to the human capital model of migration: Michael J. Brennan, "A More General Theory of Resource Migration," in Patterns of Market Behavior, Essays in Honor of Philip Taft, ed. Michael J. Brennana (Rhode Island: Brown University Pres,, 1965), pp. 45-65. Mary Jean Bowman and Robert G. Myers, "Schooling, Experience, and Gains and Losses in Human Capital through Migration," Journal of the American Statistical Association, Vol. 62, 1967, pp. 875-97. Hans-Joachim Bodenhofer, "The Mobility of Labor and the Theory of Human Capital," The Journal of Human Resources, Vol. 2, No. 4, Fall 1967, pp. 431-48. M.J. Yezer and Lawrence Thurston, "Migration Patterns and Income Change: Implications for the Human Capital Approach to Migration," Southern Economic Journal, April 1976, pp. 693-702. Solomon W. Polachek and Francis W. Horvath, "A Life Cycle Approach to Migration: Analysis of the Perspicacious Peregrinator," in Research in Labor Economics, ed. Ronald G. Ehrenberg (Greenwich, Conn.: Jai Press, 1977), Vol. 1, pp. 103-49. Empirical studies based on this model, some of which we will cite later, have been highly explanatory.

[8]There are two important advantages to the lifetime formulation: 1) it discriminates between decision makers of different remaining lifetimes in the labor force, so the probability of migration would differ under the lifetime earnings formulation; and 2) it discriminates different career profiles over time. See Jerome Rothenberg, "On the Microeconomics of Internal Migration," in Internal Migration, A Comparative Perspective, ed. Alan A. Brown and Egon Neuberger, op. cit., p. 191.

[9]Jerome Rothenberg, op. cit., p. 193, states: "It is the endogeneity of the hours decision that is crucial here. Insofar as hours are conventional or employer-prescribed...earnings may well be the better variable after all, despite its neglect of the value of leisure."

[10]See Sungwoo Kim, "Interregional Economic Migration - Some Theoretical Considerations (Parts I and II): Comment," Journal of Regional Science, Vol. 17, No. 1, 1977, pp. 117-23. Our formulation is based on Kim's formulation, which implies that a potential migrant may put more weight on the current earnings prevailing in any labor market, due to the difficulty in predicting the future streams of earnings accurately, p. 120.

[11]Lester C. Thurow, Investment in Human Capital (Belmont, Calif.: Wadsworth Publishing Co., 1970), pp. 29-43.

[12]Solomon W. Polachek and Francis W. Horvath, op. cit., presents a general human capital model of migration, in which the possibility of change in both the price and stock of human capital is introduced.

[13]Joseph Rabianski, "Real Earnings and Human Migration," The Journal of Human Resources, Vol. 6, No. 2, 1971, pp. 185-92.

[14]Jerome Rothenberg, op. cit., p. 194.

[15]This is due to the lack of a perfect capital market. If the potential migrant were able to borrow money from the capital market, he would be financed during a period of possible unemployment in the area of destination, and, as a result, the deterrent effect of such unemployment would be lessened.

[16]Jerome Rothenberg, op. cit., p. 194.

[17]Larry A. Sjaastad, op. cit., p. 84, argues that risk and uncertainty "costs" can be treated in a fashion similar to on-the-job-training costs; that is by an appropriate increase in the rate of discount for the increment to expected future earnings created by migration. Actually, algebraically, risk and uncertainty are easily integrated into the capitalization formula. Empirically, however, it is very difficult to deal with.

[18]Recently, in labor market theory, non-pecuniary elements have been receiving significant attention from economists, due to their explanatory power of objective behavior. See Robert E.B. Lucas, "Hedonic Wage Equations and Psychic Wages in the Returns to Schooling," American Economic Review, Vol. 67, No. 4, Sept. 1977, pp. 549-58. R.B. Freeman, "Job Satisfaction as an Economic Variable," American Economic Review, Papers and Proceedings, Vol. 68, No. 2, May 1978, pp. 135-41. Lester C. Thurow, "Psychic Income: Useful or Useless?" American Economic Review, Papers and Proceedings, Vol. 68, No. 2, May 1978, pp. 142-45.

[19]Larry A. Sjaastad, op. cit., p. 85, states: "Although the psychic costs involve no resource cost, they do affect resource allocation. Very likely, more migration would take place if psychic costs were zero for everyone. In addition, even if knowledge were perfect, psychic costs could explain the existence of earnings differentials larger than those implied by the money and opportunity costs of migration."

[20]The importance of non-pecuniary costs and benefits in migration has been pointed out by: Larry A. Sjaastad, op. cit. Michael J. Brennan, op. cit. Alden Speare, Jr., "A Cost-Benefit Model of Rural to Urban Migration in Taiwan," Population Studies, 25, 1971, pp. 117-31. Hans-Joachim Bodenhofer, op. cit. In spite of the relevance of non-pecuniary elements, empirically it has been found that pecuniary costs and benefits strongly dominate the decision to migrate.

[21]Here we follow the idea of R.A. Hart in separating the rate of discount for pecuniary and non-pecuniary elements. See R.A. Hart, "Interregional Economic Migration: Some Theoretical Considerations (Part II)", Journal of Regional Sciences, Vol. 15, No. 2, Dec. 1975, pp. 289-305. The reason for this separation is that the rate of discount for non-pecuniary factors can be positive or negative, depending on the individual preferences, while the rate of discount for pecuniary factors is always negative. See Sungwoo Kim, op. cit.

[22]Everett S. Lee, "A Theory of Migration," Demography, Vol. 3, No. 1, 1966, pp. 47-57. Frank J. Navratil and James J. Doyle, "The Socioeconomic Determinants of Migration and the Level of Aggregation," Southern Economic Journal, Vol. 43, No. 4, April 1977, pp. 1547-59.

[23]Theodore W. Schultz, op. cit., p. 4, states: "Young men and women move more readily than older workers. Surely this makes economic sense when one recognizes that the costs of such migration are a form of human investment. Young people have more years ahead of them than older workers during which they can realize on such an investment. Hence, it takes less of a wage differential to make it economically advatageous for them to move."

[24]Paul A. David, "Fortune, Risk, and the Microeconomics of Migration," in Nations and Households in Economic Growth, ed. Paul A. David and Melvin W. Reder (New York: Academic Press, 1974), pp. 21-88. See pp. 56-59.

[25]M.R. Fisher, The Economic Analysis of Labour (London: Weidenfeld and Nicholson, 1971), p. 47. Also see Y. Weiss, "Learning by Doing and Occupational Specialization," Journal of Economic Theory, June 1971, pp. 189-98. Sherwin Rosen, "Learning and Experience in the Labor Market," Journal of Human Resources, Summer 1972, pp. 326-342.

[26]Albert Zucker, "A Note on the Declining Tendency with Age for Investment in Human Capital," Journal of Human Resources, Fall, 1967, pp. 538-40. The importance of age for the earnings of migrants is a well established empirical fact. For example, Richard F. Wertheimer II, The Monetary Rewards of Migration within the United States (Washington, D.C.: The Urban Institute, 1970) finds that moving at 30 versus at 20 years of age reduces the returns by 50%. Samuel Bowles, "Migration as Investment: Empirical Tests of the Human Investment Approach to Geographical Mobility," Review of Economics and Statistics, Vol. 52, Nov. 1970, pp. 356-62, also confirms empirically the importance of age.

[27]Paul A. David, op. cit., p. 57.

[28]Aba Schwartz, "Migration, Age and Education," Journal of Political Economy, Vol. 84, No. 4, 1976, pp. 701-19.

[29]Jacob Mincer, Schooling, Experience, and Earnings (New York: N.B.E.R., Columbia Univ. Press, 1974), p. 31, argues that: "It would not be surprising to find that just as schooling investments are positively related to personal (family) income, so are post-school investments to personal earning capacity, that is, to the preceding schooling investments." Also see Barry R. Chiswick, Income Inequality: Regional Analyses within a Human Capital Framework (New York: N.B.E.R., Columbia Univ. Press, 1974).

[30]Gary S. Becker, op. cit., p. 16.

[31]Albert Rees, Economics of Work and Pay (New York: Harper and Row, 1973), p. 35.

[32]J. Ladinsky, "Occupational Determinants of Geographic Mobility among Professional Workers," American Sociological Review, 32, 1967, pp. 253-64. D. Friedlauder and R. J. Roshier, "A Study of Internal Migration in England and Wales - II," Population Studies, 20, 1966, pp. 45-59. These two analyses, among others, find an indication that the decision to migrate is occupationally constrained.

[33]The difference between general and specific on-the-job-training was originally made by Gary S. Becker, op. cit., pp. 19-39.

[34]Gary S. Becker, op. cit., p. 36, points out the relationship between specific-general training and migration. He states: "Earnings might differ greatly among firms, industries, and countries and yet there might be relatively little worker mobility. The usual explanation would be that workers were either irrational or faced with formidable obstacles in moving. However, if specific training were important, differences in earnings would be a misleading estimate of what 'migrants' could receive, and it might be perfectly rational not to move."

[35]The importance of seeing whether the individual is employed or unemployed in order to analyze the determinants of migration has been pointed out by John Creedy, "Inter-Regional Mobility: A Cross-Section Analysis," Scottish Journal of Political Economy, Vol. 21, No. 1, Feb. 1974, pp. 41-53. Gary S. Fields, "Economic Models of Migration: Review of the Literature and Some New Evidence," U.S. Department of Labor/Office of the Assistant Secretary for Policy, Evaluation and Research, Jan. 1977.

[36]Joseph Rabianski, op. cit., shows that unemployed individuals who are unskilled are less likely to move than unemployed individuals who are skilled.

[37]Julie DaVanzo, Why Families Move, R&D Monograph 48, U.S. Department of Labor, 1977. F.R. Oliver, "Inter-Regional Migration and

Unemployment, 1951-61," Journal of the Royal Statistical Society, Series A, 127, 1964, pp. 42-75.

[38]Some analysts recently have considered the family as a unit of analysis, maintaining the framework of human capital theory for studying migration. See Julie DaVanzo, A Family Choice Model of U.S. Interregional Migration based on the Human Capital Approach (Santa Monica: The Rand Corporation, P-4815, April 1972). Solomon W. Polachek and Francis W. Horvath, op. cit.

[39]Robert H. Frank, "Family Location Constraints and the Geographic Distribution of Female Professionals," Journal of Political Economy, Vol. 86, No. 1, Feb. 1978, pp. 117-18, states: "Only by coincidence will both spouses in a two-earner family happen to find their best job offers in the same geographic location. When they do not, one or both spouses must compromise and accept something less than a best offer. The relatively higher incidence of females in two-earner families suggests that such compromises weigh more heavily against women, on average, than against men."

[40]Empirical studies dealing with the family as a unit show that there is less geographic movement among families where husbands and wives are working and expect to remain in the labor market, than among other families. The less the mobility, the higher the education of the wife. It has also been shown that the wife generally loses in earnings when migration occurs. See Steven H. Sandell, "Women and the Economics of Family Migration," The Review of Economics and Statistics, Vol. 59, No. 4, Nov. 1977, pp. 406-14. Solomon W. Polachek and Francis W. Horvath, op. cit. Julie DaVanzo, Why Families Move, op. cit.

[41]J. Mincer and S. Polachek, "Family Investment in Human Capital: Earnings of Women," Journal of Political Economy, Part II, March/April 1974, Supplement, pp. 76-108.

[42]Empirically, it has been shown that families with school-age children are less likely to move than otherwise similar families. See Steven H. Sandell, op. cit. Solomon W. Polachek and Francis W. Horvath, op. cit. Julie DaVanzo, Why Families Move, op. cit. L. Long, "The Influence of Number and Ages of Children on Residential Mobility," Demography, 9(3), August 1972, pp. 371-82.

[43]Mary Jean Bowman and Robert G. Myers, op. cit.

[44]Different studies have analyzed the determinants of female migration and have found that the explanatory power of different variables (distance, unemployment, earnings, etc.) differs between men and women. See Nassau A. Adams, "Internal Migration in Jamaica: An Economic Analysis," Social and Economic Studies, 18, 1969, pp. 137-51. F.R. Oliver, op. cit. Ralph E. Beals et al., "Rationality and

Migration in Ghana," Review of Economics and Statistics, Vol. 49, No. 4, Nov. 1967, pp. 480-86. Frank J. Navratil and James J. Doyle, op. cit.

[45]Paul A. David, op. cit.

[46]Michael J. Greenwood, op. cit., p. 410, states: "One of the clearest implications of the related literature is that gross migration declines perceptibly with increased distance." This also occurs in other countries. See Lorene Y.L. Yap, op. cit.

[47]By analyzing the trade off between distance as a deterrent and income (wages) as an attraction of migration, and by comparing them with the costs of transportation, indirectly one can see whether or not the coefficient of distance only reflects transportation costs. Different empirical studies confirm the idea that distance reflects something more than transportation costs. The following results have been found: Larry A. Sjaastad, op. cit., found Y_j (income elasticity) =1.52, d_{ij} (distance elasticity) = -.82. Gians Sahota, "An Economic Analysis of Internal Migration in Brazil," Journal of Political Economy, Vol. 70, 1968, pp. 218-45, found W_j (wage elasticity) = 1.05 and 1.81, d_{ij} = -.60 and -.80 for older and younger migrants, respectively. L.E. Gallaway et al., "The Economics of Labor Mobility: An Empirical Analysis," Western Economic Journal, Vol. 5, June 1967, pp. 211-23, found that $Y_j - Y_i$ = .3481, d_{ij} = -22.31. Michael J. Greenwood, "An Analysis of the Determinants of Geographic Labor Mobility in the United States," Review of Economics and Statistics, Vol. 51, No. 2, May 1969, pp. 189-94, found Y_j =.54, d_{ij} = -.80.

[48]Michael J. Brennan, op. cit.

[49]Aba Schwartz, "Interpreting the Effect of Distance on Migration," Journal of Political Economy, Vol. 81, No. 5, Sept./Oct. 1973, pp. 1153-69.

[50]S.A. Stouffer, "Intervening Opportunities and Competing Migrants," Journal of Regional Science, 2, 1960, pp. 1-26.

[51]Aba Schwartz, "Migration, Age, and Education," op. cit., and "Interpreting the Effect of Distance on Migration," op. cit.

[52]Aba Schwartz, "Migration, Age, and Education," op. cit., and "Interpreting the Effect of Distance on Migration," op. cit.

[53]Walter J. Wadycki, "Stouffer's Model of Migration: A Comparison of Interstate and Metropolitan Flows," Demography, Vol. 12, No. 1, Feb. 1975, pp. 121-28. Mildred B. Levy and Walter J. Wadycki, "What is the Opportunity Cost of Moving? Reconsideration of the Effects of Distance on Migration," Economic Development and Cultural Change, 22, 1974, pp. 198-214.

[54]Mildred B. Levy and Walter J. Wadycki, "Education and the Decision to Migrate: An Econometric Analysis of Migration in Venezuela, Econometrica, Vol. 42, No. 2, March 1974, pp. 377-88. Thomas J. Courchene, "Interprovincial Migration and Economic Adjustment," Canadian Journal of Economics, Vol. 3, No. 4, 1970, pp. 550-76. Aba Schwartz, "Migration, Age, and Education," op. cit.

[55]Aba Schwartz, "Migration, Age, and Education," op. cit. Paul C. Langley, "Inter-Regional Migration and Economic Opportunity, Australia, 1966-71," The Economic Record, Vol. 53, No. 141, March 1977, pp. 51-69. Thomas J. Courchene, op. cit. Gians Sahota, op. cit.

[56]Edward Miller, "A Note on the Role of Distance in Migration: Costs of Mobility versus Intervening Opportunities," Journal of Regional Science, 12, 1972, pp. 475-78. Walter J. Wadycki, op. cit.

[57]P. Nelson, "Migration, Real Income and Information," Journal of Regional Science 1, 1959, pp. 43-74. Michael J. Greenwood, "An Analysis of the Determinants of Geographic Labor Mobility in the United States," op. cit., and"Lagged Response in the Decision to Migrate," Journal of Regional Science, Vol. 10, No. 3, 1970, pp. 375-84. Thomas J. Orsagh and Peter J. Mooney, "A Model for the Dispersion of the Migrant Labor Force and Some Results for the United States, 1880-1920," Review of Economics and Statistics, 52(3), August 1970, pp. 306-12. James A. Dunley and Henry A. Gemery, "The Role of Migrant Stock and Lagged Migration in the Settlement Patterns of Nineteenth Century Immigrants," Review of Economics and Statistics, Vol. 59, No. 2, May 1977, pp. 137-44. Paul C. Langley, op. cit.

[58]The theoretical discussion concerning the introduction of the stock of migrants can be found in Michael J. Greenwood, "Lagged Response in the Decision to Migrate," op. cit., pp. 376-78.

[59]John Vanderkamp, "Migration Flows, their Determinants and the Effects of Return Migration," Journal of Political Economy, Vol. 71, Sept./Oct. 1971, pp. 1012-31. John Vanderkamp, "Return Migration: its Significance and Behavior," Western Economic Journal, Vol. 10, No. 4, Dec. 1972, pp. 460-65. James B. Kau and C.F. Sirmans, "The Influence of Information Costs and Uncertainty on Migration: A Comparison of Migrant Types," Journal of Regional Science, Vol. 17, No. 1, 1977, pp. 89-96.

[60]It is a well-established fact that the propensity of an individual to migrate increases when he has migrated before. See P.A. Morrison, "Chronic Movers and the Future Redistribution of Population," Demography, 8, 1971, pp. 171-84. K. Land, "Duration of Residence and Prospective Migration: Further Evidence," Demography, 6, 1969, pp. 133-40. Richard L. Kaluzny, "Determinants of Household Migration: A Comparative Study by Race and Poverty Level," Review of Economics and

Statistics, 57(3), 1975, pp. 269-74. Solomon W. Polachek and Francis W. Horvath, op. cit.

[61]This graph is adapted from one made by Michael P. Todaro, op. cit., p. 30, for rural to urban migration.

[62]P.A. Morrison, "Theoretical Issues in the Design of Population Mobility Models," Environment and Planning, Vol. 5, 1973, p. 127.

[63]As Todaro, op. cit., p. 31, argues, "the macro approach probably has more policy pay-off than the micro approach for the simple reason that policy-makers would probably rather have information on actual gross-flows than on individual propensities."

[64]Daniel McFadden, "Conditional Logit Analysis of Qualitative Choice Behavior," in Frontiers in Econometrics, ed. Paul Zarembka (New York: Academic Press, 1974), pp. 105-42.

[65]John Vanderkamp, "Migration Flows, their Determinants and the Effects of Return Migration," op. cit., p. 1016.

[66]Paul C. Langley, op. cit., p. 57.

[67]With respect to wages and employment as explanatory variables for migrant flows, two hypotheses have been defended in the literature. One is the wage competition hypothesis, which is based on the argument that the difference in relative wages among areas is a necessary and sufficient condition for migration. The other is the job vacancies hypothesis, which is based on the argument that the existence of job vacancies is a necessary condition for migration, and argues that even without wage differentials, different employment possibilities may explain migration. Actually, both are not mutually exclusive. Either one may dominate in any labor market, but both must be taken into account in order to describe the labor market and explain migration. Both hypotheses are complementary. See Lloyd Ullman, "Labor Mobility and the Industrial Wage Structure in the Post-War United States," The Quarterly Journal of Economics, 1965, pp. 73-97. Lester C. Thurow, Generating Inequality (New York: Basic Books, 1975), pp. 75-98.

[68]The importance of the variance of earning (wage) distribution is reflected in the following analyses: Joseph Rabianski, op. cit., and Paul A. David, op. cit.

[69]Both the demand and supply of labor in any labor market explain migratory flows. Gary S. Fields, "Labor Force Migration, Unemployment and Job Turnover," The Review of Economics and Statistics, Vo . 58, No. 4, Nov. 1976, pp. 407-15. Donald E. Pursell, "Determinants of Male Labor Mobility," Demography, Vol. 9, No. 2, May 1972,

pp. 257-61. Ruth A. Fabricant, "An Expectational Model of Migration," Journal of Regional Science, Vol. 10, No. 1, 1970, pp. 13-24. A.B. Jack, "Inter-Regional Migration in Great Britain: Some Cross-Sectional Evidence," Scottish Journal of Political Economy, June 1971, pp. 147-60.

[70]Michael P. Todaro, "A Model of Labor Migration and Urban Unemployment in Less Developed Countries," American Economic Review, 1969, pp. 138-48. John R. Harris and Michael P. Todaro, "Migration, Unemployment and Development: A Two-Sector Analysis," American Economic Review, March 1970, pp. 126-42. Michael P. Todaro, "Urban Job Expansion, Induced Migration and Rising Unemployment," Journal of Development Economics, 3, 1976, pp. 211-25.

[71]Different studies have introduced some kind of measure for the size of the labor market. This variable has been significant. Ira S. Lowry, Migration and Metropolitan Growth: Two Analytical Models (San Francisco: Chandler Publishing Co., 1966). Joseph Rabianski, "Real Earnings and the Present Value of Future Earnings in a Theory of Human Migration," Diss. University of Illinois, 1970.

[72]Solomon W. Polachek and Francis W. Horvath, op. cit., introduce location preference in their human capital model of migration.

[73]Ben-Chieh Liu, "Differential Net Migration Rates and the Quality of Life," Review of Economics and Statistics, Vol. 57, No. 3, 1975, pp. 329-37. Lowdon Wingo, "The Quality of Life: Toward a Microeconomic Definition," Urban Studies, Vol. 10, No. 3, 1973, pp. 3-18. Richard J. Cebula, "Migration, Economic Opportunity, and the Quality of Life: An Analysis for the United States according to Race, Sex and Age," The Annals of Regional Science, March 1975, pp. 127-33.

[74]Michael J. Greenwood, "An Analysis of the Determinants of Geographic Labor Mobility in the United States," op. cit. James A. Dunley and Henry A. Gemery, op. cit. William Alonso, "The System of Intermetropolitan Population Flows," in Population Distribution and Policy, ed. Sara Mills Mazie (Washington, D.C.: Government Printing Office, 1972). Richard J. Cebula and Robert M. Kohn, "Public Policies and Migration Patterns in the United States," Public Finance, Vol. 30, No. 2, 1975.

[75]Gary S. Fields, "Economic Models of Migration: Review of the Literature and Some New Evidence," op. cit.

[76]Lorene Y.L. Yap, op. cit.

[77]Michael J. Greenwood, "Research on Internal Migration in the United States: A Survey," op. cit.

[78]Studies that have devided migrants into age categories have found that for each age group the explanatory power of the variable differs. Aba Schwartz, "Migration, Age, and Education," op. cit. Thomas J. Courchene, op. cit. L.E. Gallaway, "Age and Labor Market Mobility Patterns," Southern Economic Journal, Oct. 1969, pp. 171-80.

[79]Studies that have introduced a measure of the aggregate level of education in the areas of origin and destination have found either incorrect results (signs) or insignificant ones. Gians Sahota, op. cit. Ralph E. Beals, Mildred B. Levy and Leon N. Moses, "Rationality and Migration in Ghana," Review of Economics and Statistics, Vol. 49, No. 4, Nov. 1967, pp. 480-86. Nassau A. Adams, op. cit.

[80]Empirically, and in general, it has been found that there is a significant coexistence between in and out-migration in different areas. Celia A. Morgan, "A Note on a Perennial Question in Migration Analysis," Growth and Change, 1974, pp. 43-47. M. Cordey-Hayes and D. Gleave, Migration Movements and the Differential Growth of City Regions in England and Wales, Research Paper 1, presented at the European Regional Science Association Congress, Vienna, Aug. 1973 (London: Centre for Environmental Studies, Sept. 1973).

[81]Larry A. Sjaastad, op. cit. Aba Schwartz, "Migration, Age and Education," op. cit. Michael J. Brennan, op. cit.

[82]Hope T. Eldridge, "Patterns of Dominance of Internal Migration, United States, 1955-60," Proceedings of the World Population Conference, 1965, Vol. 4 (New York: United Nations, 1965). Edward Miller, "Return and Nonreturn In-Migration," Growth and Change, 1973, pp. 3-9. John Vanderkamp, "Migration Flows, their Determinants and the ffects of Return Migration," op. cit. John Vanderkamp, "Return Migration: Its Significance and Behavior," op. cit.

[83]Michael J. Greenwood, "Simultaneity Bias in Migration Models: An Empirical Examination," Demography, Vol. 12, No. 3, Aug. 1975, pp. 531-32, argues: "If significant interactions are expected between the change variables and migration, then the specifications of a simultaneous-equations model and its estimation by appropriate simultaneous-equations techniques may be desirable....It is not always clear that enough additional knowledge will be generated to make the larger effort worth the cost." Also see Julie DaVanzo, "Comment on M.J. Greenwood's 'Simultaneity Bias in Migration Models: An Empirical Examination,'" Demography, Vol. 13, No. 3, Aug. 1976, pp. 411-15. Michael J. Greenwood, "Reply to DaVanzo," Demography, Vol. 13, No. 3, Aug. 1976, pp. 417-19.

[84]Richard F. Muth, "Differential Growth among Large U.S. Cities," in Papers in Quantitative Economics, ed. James P. Quirk and Arvid M. Zarley (Lawrence, Kansas: The University Press of Kansas, 1968), pp.

311-55. Richard F. Muth, "Migration: Chicken or Egg?" Southern Economic Journal, 37, Jan. 1971, pp. 295-306. Bernard Okun, "Interstate Population Migration and State Income Inequality: A Simultaneous Equations Approach," Economic Development and Cultural Change, 16, Jan. 1968, pp. 297-313. Lee D. Olvey, "Regional Growth and Inter-Regional Migration -- Their Pattern of Interaction," Review of Regional Studies, Winter 1972, pp. 139-63. Michael J. Greenwood, "A Simultaneous-Equations Model of Urban Growth and Migration," Journal of the American Statistical Association, Vol. 70, No. 352, Dec. 1975, pp. 797-810.

CHAPTER III

MODEL FORMULATION: DEFINITION AND MEASUREMENT OF THE VARIABLES

The formulation of the model to be examined empirically is determined by the theoretical analysis, which was established in a previous section of this work, by the data available, and finally by prior information. The general criterion which guides the formulation of the model is that the individual is rational and migrates for economic reasons, his objective being the maximization of his lifetime net benefits. The object to be analyzed in our model, a place to place migration model,[1] is the flow of migrants among Spanish provinces. The general formulation of the model is:

$$M_{ij}=F(B_j,\ B_i,\ C_{ij})$$

and the general hypotheses are:

$$f_1>0,\ f_2<0,\ f_3<0$$

where M_{ij} indicates a flow of migrants from a province i (origin) to a province j (destination). B_j, B_i are the expected lifetime benefits to be realized in j and i, respectively. C_{ij} is the expected costs of the move from i to j. Finally, f_1, f_2, f_3 are the derivatives of M_{ij} with respect to B_j, B_i, and C_{ij}. According to our theoretical explanation, the following hypotheses are deduced and will be tested: 1) the flow of migrants from i to j varies directly with the economic opportunities at j ($f_1>0$); 2) the flow of migrants from i to j varies inversely with the economic opportunities at i ($f_2<0$); and 3) the flow of migrants from i to j varies inversely with the costs of the

move ($f_3 < 0$).

The empirical examination of the place to place migration model will be realized by using aggregate data. The objective of this examination is not so much to ascertain the determinants of the individual decision to migrate, as it is to identify and quantify the relationship between the interprovincial flows of migrants and the economic determinants of these flows. We have access to two different sources of data for the interprovincial flow of migrants in Spain, the Censo de la Población de España of 1970, which refers to the flow of migrants in the period 1960 to 1970, and the Anuario Estadístico de España, which refers to the annual flow of migrants since 1962. As a result, the model will be tested for the census period, 1960 to 1970, and for the following selected years: 1962, 1964, 1967, 1969, 1971, and 1973.[2]

The specification of the model to be tested empirically is based on the conceptualization and definition of the following elements: the geographic unit of analysis, the flow of migrants, the dependent variables, the independent variables and their measurement, and the functional relationship between the flow of migrants and economic opportunities.[3]

Geographic Unit of Analysis

The geographic unit theoretically ideal for the analysis of the determinants of migratory flows is that space in which economic conditions are homogeneous and which represents an individual labor

market. It should be an area defined occupationally, industrially and geographically within which workers are willing to move relatively freely from one job to another and in which information about opportunities is relatively costless.[4] The selection of the geographic unit of analysis is conditioned by the available statistics. In the case of Spain, the geographic unit which most closely resembles the ideal unit just mentioned is the province, and it is this one which we have selected. Moreover, in Spain the individual identifies more with his province than with other spatial units, such as the municipality or the administrative region. Of the 50 Spanish provinces, we have eliminated Baleares (8), Las Palmas (35), and Santa Cruz de Tenerife (38)[5] from our model. These provinces are islands, which makes the cost of moving to or from them totally different from mobility on the peninsula itself. As a result, we will study the interprovincial flow of migrants among the 47 peninsular provinces.

The Flows to be Examined - the Dependent Variable

The flow of migrants to be examined is made up of those individuals who move in a specific period of time from one province to another. Since there are 47 geographic units of analysis, the potential migrant from any given province can select any of the remaining 46 provinces as his destination. The total number of interprovincial flows will then be $47 \times 46 = 2162$.

Since we are using two sources of data, the following flows of migrants will define our dependent variable. For the model based on

data from the Censo, the flows (M_{ij}) to be examined are the following: total gross interprovincial migration, total gross male interprovincial migration, total gross female interprovincial migration (all of which are measured as the number of persons with 10 or more years of age residing in province j as of December 31, 1970, and who were residing in province i on December 31, 1960), and the total gross interprovincial migration of persons divided into three different age groups: 10 to 24 years, 25 to 49 years, and above 50 years (measured as the number of persons in each age group residing in province j as of December 31, 1970, and who were residing in province i on December 31, 1960).[6] For the model based on data from the Anuario, the only category available referring to interprovincial migratory flows is total gross interprovincial migration. It is measured as the total number of persons who changed their province of residence with respect to the previous year.[7]

Our empirical examination will refer to the previously defined categories. Evidently, the categories derived from the Censo and the conceptualization of migrants in the Anuario are not the best for the economic analysis of migratory flows, but they are the only ones available to us. Ideally the population to be studied should be individuals in the labor force (15 to 65 years of age).[8] Moreover, the age categories that the Censo has established in order to divide migrants are not mutually exclusive and are not determined by rational economic criteria.

Once aware of the available data on migration flows, the next step

would be to define the dependent variable or object of study. Three populations intervene in the conceptualization and definition of the variable to be explained: the interprovincial flow of migrants (M_{ij}), the population of the province of origin (P_i), and the population of the province of destination (P_j). Given that the population size of the provinces varies, the interprovincial flow of migrants should be normalized according to population size. There are different ways of normalizing migratory flows:[9] $M_{ij}/P_i + P_j$, $M_{ij}/P_i \times P_j$, and M_{ij}/P_i. The expression M_{ij}/P_i is the one that we will be using.[10] We have selected this form of normalization because it reflects the proportionality between the flow of migrants and the population of origin. In other words, it can be interpreted as a migration probability.[11] It also avoids heteroscedasticity arising from possible proportionality of the error term with the size of the provincial population.[12] To summarize, our dependent variable will be the rate of interprovincial migratory flows, defined as M_{ij}/P_i, where M_{ij} refers to migrant flow and P_i refers to the population in the province of origin. P_i always refers to the population specified in M_{ij}. For example, if M_{ij} refers to male migration, P_i is the population of male migrants. Also, when we test the model using data from the Censo, P_i[13] refers to population in the province of origin in 1960. When we test the model using data from the Anuario, P_i[14] refers to the population in the specific year being tested.

Explanatory Variables

The independent variables or economic determinants of inter-provincial migratory flows should reflect the factors entering into the realization of the expected benefits and costs of migration. Given that our model will be empirically examined by using aggregate data, in each instance the explanatory variables are aggregate proxies for costs and benefits. Moreover, we assume that the decision to migrate is made once and forever, so that both current and future costs and benefits enter into the potential migrant's present value calculations of net benefits. Since we only know the current levels of costs and benefits, the assumption adopted is to consider this actual level of economic indicators as a proxy for future levels.[15]

With respect to the cost of migration, two variables - distance between provinces and the stock of migrants - will be proxy variables for both the monetary and non-monetary costs of migration. Distance (D_{ij}), defined as road kilometers between capital cities of provinces i and j, is a proxy for transportation, information and psychic costs. The hypothesis deduced and to be tested is that the rate of migratory flows between provinces varies inversely with distance. The stock of migrants ($Stock_{ij}$), defined as the number of persons born in province i and living in province j in 1960[16], will be a proxy variable for the monetary and non-monetary costs of migration. The lack of perfect information concerning economic opportunities underlies the use of this variable.[17] The potential migrant's most acces-

sible way to obtain information is to acquire it from family and/or friends in the province of potential destination. The stock of migrants, a proxy for friends and relatives in the province of destination, usually are the ones to transmit information to the potential migrants of their original province. As a result, we expect that the flow of migrants will be directed to those provinces to which migrants from their province have already gone. Friends and relatives not only are a source of information, but also help the new migrants adapt to the new province, thus decreasing the psychic costs of the move. They also decrease monetary costs by providing food and shelter during the first and most difficult moments of the move. In summary, the friends and relatives in the potential province of destination (stock of migrants) reduces uncertainty with respect to job opportunities, facilitates the social transition of the move, and decreases transition costs.[18] Theoretically, we expect the flow of migrants between provinces to vary directly with the stock of migrants.

With respect to benefits, two variables, earnings at origin and earnings at destination, will be introduced in our basic model. Earnings which are the product of wages times hours worked are the main determinants of an individual economic position. Ideally, this variable should be measured in real terms, which implies that the different costs of living in the provinces should be taken into account. However, in order to include earnings in real terms as an explanatory variable, it is necessary to use a provincial cost of living index, which is not statistically available. Even if we could

use such a deflator, it would not result in a true reflection of the cost of living of the potential migrant, since the province is a heterogeneous unit in both its way of life and socioeconomic structure. In each province, there exist different areas, some in which agriculture predominates, others in which industry predominates, some which are highly urbanized, others which are less so, etc. As a result, the cost of living varies among areas. Thus, the use of a homogeneous cost of living index for the whole province is not theoretically recommendable. Moreover, those who have introduced earnings in real terms by using the cost of living index as a deflator have not obtained results that are significantly different from those in which earnings are in nominal terms.[19] Because of this, our model will use earnings in nominal terms, with the implication that the individual suffers money illusion.

The variables E_i and E_j (earnings at origin and destination, respectively) are measured as average yearly earnings in pesetas in the manufacturing sector.[20] In the model based on data from the Censo, E_i and E_j refer to the year 1960.[21] In the model based on data from the Anuario, these two variables refer to the specific year being tested.[22] The hypothesis deduced and to be tested is that the flow of migrants will tend to move from a province with relatively low average earnings to one with relatively high average earnings.

The explanatory variables in our basic model will be the following: D_{ij} (distance between provinces), $Stock_{ij}$ (the stock of migrants in the potential province of destination), and E_i and E_j (earn-

ings in the provinces of origin and destination, respectively). We will also generalize the model by introducing other variables. One of these is the size of the labor market, measured as the number of persons in the non-agricultural and non-fishing sectors of each province.[23] This variable will be an aggregate proxy for the possibility of finding employment. We will introduce it into our model because the greater the size of the labor market, the greater the possibility of finding employment, particularly for those with uncertain information. The hypothesis, then, is that individuals will go from relatively small labor markets to relatively large ones. Another of the variables to be introduced into the generalized model is the degree of urban population in each province, measured as the percent of population living in municipalities of more than 10,000 inhabitants.[24] This variable will be used alternatively with that of the size of the labor market. It is a proxy for the possibility of finding employment, since the greater the urban population in a province, the greater the development of the industrial and sectors. Thus, the possibility of finding employment is higher. It is also a proxy for cultural and educational possibilities. The hypothesis is that individuals will tend to move towards provinces with a relatively high degree of urbanization. Another alternative variable to be introduced is the population size of the province of destination,[25] which is a reflection of the size of the labor market. The hypothesis is that individuals will tend to move toward the more populous provinces. Another variable to be introduced is the degree

of provincial industrialization, measured as the percent share of industrial employment.[26] We will also introduce as a variable the provincial rate of unemployment, measured as the percent share of the unemployed members of the active population.[27] Unemployment is a proxy for the possibility of finding employment, since provinces with high rates of unemployment have loose labor markets, thus indicating that it will be difficult to find employment there. On the other hand, provinces with low rates of unemployment have tight labor markets, thus indicating that there are more possibilities of finding employment. The hypothesis is that the individual will tend to move to provinces with low rates of unemployment. The provincial level of education, another variable to be analyzed, is measured as the total number of individuals with at least eight years of education.[28] This variable may affect the interprovincial flow of migrants in two different ways. First, the higher the average level of education in a province, the greater the percentage of educated and, thus, more mobile, individuals. As a result, the rate of migrants will tend to increase as the level of education in a province increases. Second, the higher the average level of education in a province, the more developed the province, so that it will attract individuals. As can be seen, both of these effects move in opposite directions, and, as a result, the overall effect of this variable is an empirical question.[29]

The Functional Form of the Model[30]

The three formulations most commonly used for analyzing the eco-

nomic determinants of internal migration are: the linear model ($M_{ij}=F_1(B_j, B_i, C_{ij})$, the ratio model ($M_{ij}=F_2(B_j/B_i, C_{ij})$, and the difference model ($M_{ij}=F_3(B_j-B_i, C_{ij})$. The linear model considers the economic opportunities in the area of origin and the area of destination as distinct variables. This allows us to study and compare the relative importance of the economic opportunities at origin and destination, in order to explain the causes of migratory flows. Given that the potential migrant generally has more information about his place of origin than of the place of destination, the expectations of the linear model are that the coefficients of the variables at origin should be greater than those at destination. In other words, it presupposes the existence of assymetrical information between origin and destination. The ratio and difference models consider the combination of origin and destination variables as a single one, and they assume that the economic determinants at origin (push factor) are just as trong as the economic determinants at destination (pull factor). These models consider that information for a potential migrant is symmetrical with respect to origin and destination. Comparing the linear model with the difference and ratio models, wesee that the former offers more flexibility than the latter. Moreover, the assumption of symmetrical information which the latter make is an empirical question.

Recently, a new model has appeared in the literature. It is the allocative shares approach,[31] and it studies the determinants of internal migration in two stages. The first is dedicated to the

analysis of the rates of out-migration as a function of the economic conditions at origin. Thus, this stage is similar to the classical push model. The second stage analyzes the relative attractiveness of the competing alternative destinations. In our empirical analysis, all these formulations will be used, and we will compare their relative explanatory power.

The general expression of the models to be analyzed empirically are the following:

Basic Models:

Linear Form: $M_{ij}/P_i = a_0 - a_1 D_{ij} + a_2 E_j - a_3 E_i + a_4 Stock_{ij} + u$

Ratio Form: $M_{ij}/P_i = a_0 - a_1 D_{ij} + a_2 E_j/E_i + a_3 Stock_{ij} + u$

Difference Form: $M_{ij}/P_i = a_0 - a_1 D_{ij} + a_2 (E_j - E_i) + a_3 Stock_{ij} + u$

Allocative Shares Form: $M_{ij}/Out_i = a_0 - a_1 D_{ij} + a_2 E_j + a_3 Stock_{ij} + u$

Double Log Ratio Form:

$$\log M_{ij}/P_i = \log a_0 - a_1 \log D_{ij} + a_2 \log E_j/E_i + a_3 \log Stock_{ij} + u$$

These five forms will be analyzed empirically using data from the Censo. In our empirical analysis, based on data from the Anuario, the stock of migrants is not introduced as an explanatory variable because of the lack of precise data. The only variable not previously defined is the dependent variable in the allocative shares model, which represents the number of out-migrants from i who select

j as a destination. The signs of the independent variables in all five forms of the model indicate the hypothetical direction of influence of each variable with respect to the rate of interprovincial migratory flows.

In our generalized model, we will basically use the same independent variables that we used in the basic model, and we will alternatively add the size of the labor market, the percent of urban population, the population of the province of destination, the rate of unemployment, and the level of education. Moreover, we will also study what has been called the first stage in the allocative shares model. This analyzes how origin characteristics affect the rate of out-migration.[32]

Footnotes

[1]We have chosen this type of model for two main reasons: 1) the interdependence of the system, and 2) the results are more directly related to migration policy. For the first argument, see William Alonso, "Policy-Oriented Interregional Demographic Accounting and a Generalization of Population Flow Models," in Internal Migration, A Comparative Perspective, ed. Alan A. Brown and Egon Neuberger (New York: Academic Press, 1977), p. 223. For the policy implications of different models, see Gary S. Fields, "Economic Models of Migration: Review of the Literature and Some New Evidence," U.S. Department of Labor/Office of the Assistant Secretary for Policy, Evaluation and Research, Jan. 1977, pp. 7-11.

[2]These years have been selected because the data source of some of the independent variables is the Renta Nacional de Espana y su Distribucion Provincial (Bilbao: Banco de Bilbao), which was published only for the years we selected. Although we could have used other data sources, these would have been less accurate. Moreover, we wished to keep the source consistent.

[3]Gary S. Fields, op. cit., p. 14.

[4]Celia Morgan, "Is Out-Migration affected by Economic Conditions? Comment," Southern Economic Journal, April 1976, pp. 752-58, shows how the definition of the geographic unit of analysis can change the empirical results of a study.

[5]The number in parentheses indicates the location of the province. See Map 1, p. 38.

[6]Source: Censo de la Población de España, según la Inscripción Realizada el 31 de Diciembre de 1970, Tomo II, Características de la Población (Madrid: Instituto Nacional de Estadística, 1973), Cuadernos Provinciales, Table 9.

[7]Source: Anuario Estadístico de España, 1962, 1964, 1967, 1969, 1971, 1973 (Madrid: Instituto Nacional de Estadística), Capítulo II, Parte II, Migraciones Interiores, Table 3.3.

[8]The human capital model is more directly applicable to persons in the labor force. See Larry A. Sjaastad, "The Costs and Returns of Human Migration," Journal of Political Economy, Oct. Supplement, 1962, pp. 80-93.

[9]For an analysis of the different ways of normalization, see Geoffrey Young, "The Choice of Dependent Variable for Cross-Section Studies of Migration," Canadian Journal of Economics, Feb. 1975, pp. 93-100. John Vanderkamp, "The Role of Population Size in Migration Studies," Canadian Journal of Economics, Aug. 1976, pp. 508-17. William Haenszel, "Concept, Measurement, and Data in Migration Analysis," Demography, Vol. 4, No. 1, 1967, pp. 253-61.

[10]As William Haenszel, op. cit. said, the two forms of normalization M_{ij/P_i+P_j} and $M_{ij/P_i xP_j}$ are not descriptive estimators but rather constitute a test of the hypothesis that migration is a random variable proportionate to population.

[11]This is the one recommended by William Haenszel, op. cit.

[12]Lorene Y.L. Yap, "The Attraction of Cities, A Review of the Migration Literature," Journal of Development Economics, 4, 1977, p. 244.

[13]Censo de la Población y de las Viviendas de España, según la Inscripción Realizada el 31 de Diciembre de 1960, Tomos III y IV (Madrid: Instituto Nacional de Estadística, 1968), Fascículos provinciales, Table 1.

[14]Source: Renta Nacional de España y su Distribución Provincial, 1962, 1964, 1967, 1969, 1971, 1973 (Bilbao: Banco de Bilbao), Capítulo II.

[15]The explanation of the rationality of this assumption can be found in John Vanderkamp, "Migration Flows, their Determinants and the Effects of Return Migration," Journal of Political Economy, Vol. 79, Sept./Oct. 1971, pp. 14-16. Also see Paul C. Langley, "Interregional Migration and Economic Opportunity, Australia, 1966-71," The Economic Record, Vol. 53, No. 141, March 1977, pp. 56-57.

[16]Source: Censo de la Población de España, según la Inscripción Realizada el 31 de Diciembre de 1970, Tomo II, Características de la Población, op. cit., Cuadernos Provinciales, Table 7.

[17]The economic rationality of introducing the stock of migrants as an explanatory variable in migration analysis can be found in the works of P. Nelson, "Migration, Real Income and Information," Journal of Regional Science, 1, 1959, pp. 43-74. Michael J. Greenwood, "Lagged Response in the Decision to Migrate," Journal of Regional Science, 10, 1970, pp. 375-84. Ruth A. Fabricant, "An Expectational Model of Migration," Journal of Regional Science, 10, 1, 1970, pp. 13-24. Thomas J. Orsagh and Peter J. Mooney, "A Model for the Dispersion of the Migrant Labor Force and some Results for the United States, 1880-1920," Review of Economics and Statistics, 52, 3, Aug. 1970, pp. 306-12. James A. Dunlevy and Henry A. Gemery, "The Role of Migrant Stock and Lagged Migration in the Settlement Patterns of Nineteenth Century Immigrants," Review of Economics and Statistics, Vol. 59, May 1977, pp. 137-144.

[18]Michael J. Greenwood, op. cit.

[19]Joseph Rabianski, "Real Earnings and Human Migration," Journal of Human Resources, Vol. 6, No. 2, 1971, pp. 191-92, having compared a model in which earnings were in nominal terms and one in which they were in real terms, states: "The inclusion of the inter-regional cost-of-living deflator did not significantly improve the models based upon nominal earnings."

[20]The manufacturing sector in our study includes the following industries: textile/clothing, wood/paper/graphic arts, chemical, ceramics/glass/cement, food/drink/tobacco.

[21]Source: Renta Nacional de España y su Distribución Provincial 1960 (Bilbao: Banco de Bilbao, 1962), pp. 46-49.

[22]Source: Renta Nacional de España y su Distribución Provincial 1962, 1964, 1967, 1969, 1971, 1973 (Bilbao: Banco de Bilbao), Capítulo 4, Ingresos, Tables 1.2-1.13.

[23]For the model based on the Censo, the source is: Renta Nacional de España y su Distribución Provincial, 1960, op. cit., Capítulo 6, Provincias, Rows 1, 4, 5, 6, 7, 8, 12. For the model based on the Anuario, the source is: Renta Nacional de España y su Distribución Provincial, 1962, 1964, 1967, 1969, 1971, 1973, op. cit., Provincias Rows 1, 4, 5, 7, 8, 9.

[24]For the model based on data from the Censo, the source is: Censo de la Población y de las Viviendas de España, según la Inscripción Realizada el 31 de Diciembre de 1960, Tomos II y IV, op. cit., Fascículos Provinciales, Table 22.

[25]Source: Anuario Estadístico de España, 1960, 1962, 1964, 1967, 1969, 1971, 1973 (Madrid: Instituto Nacional de Estadística), Parte II, Capitulo II, Table 1.2.

[26]Source: Renta Nacional de España y su Distribución Provincial 1960, op. cit., pp. 49-51.

[27]Source: Anuario Estadístico de España, 1960, op. cit., Parte II, Capítulo 9, Table 1.1.

[28]Source: Censo de la Población y de las Viviendas de España, según la Inscripción Realizada el 31 de Diciembre de 1960, Tomos II y IV, op. cit., Fascículos Provinciales, Table 4.

[29]The same argument is developed by Gian S. Sahota, "An Economic Analysis of Internal Migration in Brazil," Journal of Political Economy, Vol. 70, 1968, p. 225.

[30]Here we follow the ideas of Gary S. Fields, op. cit., pp. 13-17, 19-21.

[31]James B. Kau and C.F. Sirmans, "New, Repeat, and Return Migration: A Study of Migrant Types," Southern Economic Journal, Oct. 1976, Vol. 43, No. 2, pp. 1144-47. Aba Schwartz, "Interpreting the Effect of Distance on Migration," Journal of Political Economy, Vol. 81, Sept./Oct. 1973, pp. 1153-69. G. Laber, and R.X. Chase, "Interprovincial Migration in Canada as a Human Capital Decision," Journal of Political Economy, July/Aug. 1971, pp. 795-804. These studies have used the allocation shares approach, and the results have been highly successful.

[32]In this case, since we will not be relating origin to destination, the number of observations will be 47.

CHAPTER IV

ANALYSIS OF THE EMPIRICAL RESULTS

The analysis of the empirical results will be organized in the following way. First, we will examine the results of the basic model which refers to the interprovincial migratory flows of the period 1960 to 1970 and is based on data from the Censo de la Población de España, 1970. This will be followed by an examination of the results of a generalized model based on the former, which refers to the interprovincial migratory flows of the same period and is based on the same data source. Next, we will examine the results of the basic and generalized models which refer to the interprovincial migratory flows of the years 1962, 1964, 1967, 1969, 1971, and 1973, and are based on data from the Anuario Estadístico de España. An overall view of the empirical results will be given, and those obtained from the Censo will be compared to those obtained from the Anuario. We will also compare the performance of the different model specifications. All the models and their different specifications (linear, ratio, difference, allocative shares, double log ratio) have been conceptualized as a single equation model, and the estimation procedure we have followed has consisted in the use of a multiple linear regression which produces ordinary least squares regression estimates of the equation parameter.

The Determinants of Interprovincial Migratory Flows, 1960 to 1970: The Basic Model

The estimated equations explaining the economic determinants of total interprovincial migratory flows for 1960 to 1970 are presented in Tables 1 through 5.[1] The equations estimated for the five different specifications of the model express the relationship between the total interprovincial flow of migrants (normalized according to the population of the province of origin in 1960, M_{ij}/P_i) and the following independent variables: distance between provinces (D_{ij}), earnings - average per capita earnings in the provinces of origin and destination (E_i, E_j), the ratio of earnings between provinces (E_j/E_i), the difference in earnings between provinces (E_j-E_i), all of which refer to 1960 - and the number of persons born in province i and living in province j in 1960 ($Stock_{ij}$). As can be seen in Tables 1 through 5, two equations are estimated in each of the five specifications of the model. One includes the stock of migrants as an explanatory variable, and the other does not. We did this for two reasons. First, as distance and the stock of migrants are both proxy variables for monetary and non-monetary costs as well as uncertainty, which is conceptually unmeasurable, it is important to see how the introduction of the migrant stock variable affects the explanatory power of the distance variable, which has been found to be one of the most important explanatory variables in migration research. Second, as there has been some controversy over the introduction of the stock of migrants as an explanatory

Table 1

Interprovincial Migration in Spain, 1960 to 1970

Linear Model: $M_{ij}/P_i = a_0 - a_1 D_{ij} + a_2 E_j - a_3 E_i + a_4 Stock_{ij} + u$ -- O.L.S.

	Total Migrants			
Independent Variables	Coefficients[1]	Elasticities[2]	Coefficients[1]	Elasticities[2]
D_{ij}	-.001339*** t=(-2.886) b=(-.032)	-.246	-.006871*** t=(-8.032) b=(-.166)	-1.262
E_j	.000088*** (4.053) (.466)	.726	.000537*** (13.719) (.283)	4.403
E_i	-.000033* (-1.539) (-.017)	-.266	-.000143*** (-3.622) (-.075)	-1.167
$Stock_{ij}$	.001169*** (72.148) (.842)	.938	----	----
Constant	-.451		-2.893	
	$\bar{R}^2$=.746 S.E.E.=.0059 No. of runs of signs=903 D.W.=2.131 V.N.=2.132 N=2,091		$\bar{R}^2$=.113 S.E.E.=.0104 No. of runs of signs=771 D.W.=1.494 V.N.=1.495 N=2,091	

1) coefficients multiplied by one thousand
2) elasticities calculated at mean values
***, **, and * indicate that the coefficient is significantly different from zero at the .01, .05, and .10 levels, respectively.
t=t-ratio, b=beta coefficient (normalized partial regression coefficient).

Table 2

Interprovincial Migration in Spain, 1960 to 1970

Ratio Model: $M_{ij}/P_i = a_0 - a_1 D_{ij} + a_2 E_j/E_i + a_3 Stock_{ij} + u$ -- O.L.S.

Independent Variables	Total Migrants: Coefficients[1]	Total Migrants: Elasticities[2]	Coefficients[1]	Elasticities[2]
D_{ij}	-.001331*** t=(-2.872) b=(-.032)	-.245	-.006830*** t=(-7.945) b=(-.165)	-1.254
E_j/E_i	1.661230*** (4.506) (.052)	.589	8.940630*** (13.405) (.278)	3.174
$Stock_{ij}$	.001170*** (72.731) (.843)	.939	----	----
Constant	-.843		-2.732	
	$\bar{R}^2$=.746 S.E.E.=.0056 No. of runs of signs=977 D.W.=2.122 V.N.=2.123 N=2,091		$\bar{R}^2$=.103 S.E.E.=.0104 No. of runs of signs=885 D.W.=1.473 V.N.=1.474 N=2,091	

Notes: See Table 1.

Table 3

Interprovincial Migration in Spain, 1960 to 1970

Difference Model: $M_{ij}/P_i = a_0 - a_1 D_{ij} + a_2(E_j - E_i) + a_3 Stock_{ij} + u$ -- O.L.S.

Independent Variables	Total Migrants			
	Coefficients[1]	Elasticities[2]	Coefficients[1]	Elasticities[2]
D_{ij}	-.001306*** t=(-2.815) b=(-.031)	-.239	-.006786*** t=(-7.843) b=(-.164)	-1.246
$(E_j - E_i)$	.000060*** (3.920) (.045)	.002	.000341*** (12.273) (.256)	.009
$Stock_{ij}$	.001174*** (73.267) (.846)	.946	----	----
Constant	.881			
	$\bar{R}^2$=.745 S.E.E.=.0059 No. of runs of signs=1,001 D.W.=2.124 V.N.=2.125 N=2,091		$\bar{R}^2$=.092 S.E.E.=.0105 No. of runs of signs=899 D.W.=1.479 V.N.=1.479 N=2,091	

Notes: See Table 1.

Table 4

Interprovincial Migration in Spain, 1960 to 1970

Allocative Shares Model: $M_{ij}/Out_i = a_0 - a_1 D_{ij} + a_2 E_j + a_3 Stock_{ij} + u$ -- O.L.S.

Independent Variables	Total Migrants: Coefficients[1]	Total Migrants: Elasticities[2]	Coefficients[1]	Elasticities[2]
D_{ij}	-.013177*** t=(-4.740) b=(-.052)	-.323	-.046360*** t=(-9.058) b=(-.184)	-1.137
E_j	.001067*** (8.156) (.093)	1.168	.003756*** (16.041) (.326)	4.112
$Stock_{ij}$	.006978*** (72.040) (.828)	.747	----	----
Constant	-13.185		-43.962	
	$\bar{R}^2$=.753 S.E.E.=.0334 No. of runs of signs=903 D.W.=2.107 V.N.=2.108 N=2,091		$\bar{R}^2$=.138 S.E.E.=.0624 No. of runs of signs=715 D.W.=1.696 V.N.=1.700 N=2,091	

Notes: See Table 1.

Table 5

Interprovincial Migration in Spain, 1960 to 1970

Double Log Ratio Model: $\text{Log}(M_{ij}/P_i)=a_0-a_1\text{Log}D_{ij}+a_2\text{Log}(E_j/E_i)+a_e\text{Log Stock}_{ij}+u$--O.L.S.

	Total Migrants	
Independent Variables	Coefficients	Coefficients
D_{ij}	-.365*** t=(-10.156) b=(-.137)	-1.169*** t=(-24.329) b=(-.439)
(E_j/E_i)	.460*** (6.930) (.091)	1.792*** (19.740) (.356)
Stock_{ij}	.686*** (50.547) (.732)	----
Constant	-9.439	-.337
	$\bar{R}^2$=.694 S.E.E.=.8827 No. of runs of signs=856 D.W.=1.666 V.N.=1.667 N=2,091	$\bar{R}^2$=.319 S.E.E.=1.3162 No. of runs of signs=714 D.W.=.0961 V.N.=.9065 N=2,091

Notes: See Table 1.

variable for migration, we wanted to be able to compare the results of the equation which included it to those of the equation in which it is absent. The argument against the introduction of the migrant stock variable has been developed in the following way. Given that the stock of migrants in any province represents the sum of all past gross migrants less deaths and repeat migrants, its distribution among provinces is a function of past migration. Thus, it is a function of the variables which have themselves determined past migration. As a result, if migratory flows in recent periods have not removed the interspatial incentives to migrate, it is possible that the migrant stock variable will reflect the same forces that are introduced to explain current migration. If this occurs, the introduction of the migrant stock variable will create a problem of multicollinearity. According to this argument, then, it seems that when the incentives to migrate among spatial units have not been removed, it is not recommendable to introduce the migrant stock variable.[2] On the other hand, those who, like Nelson[3] and Greenwood,[4] favor the introduction of the migrant stock variable believe that if the stock of migrants is not introduced as an explanatory variable when analyzing the determinants of current migratory movements, the true direct relationship between different variables and migratory flows will be overstated.[5] They argue that since the distribution of friends and relatives is a function of past migration, it is a function of all the variables which entered into the determinants of past migration. Thus, if the migrant stock variable is not included

in the estimated relationship, the parameter estimates of most of the variables will obscure the true direct relationship between these variables and migration.[6] In other words, the introduction of this variable avoids specification bias in the model as well as provides information regarding the effect of family and friends on migration. The proponents of the migrant stock variable believe that the inclusion of this variable will result in an improved model specification.[7]

The introduction of the migrant stock variable had quite specific effects on our estimated equations (See Tables 1 through 5). First, this variable is highly explanatory. Note that the beta coefficient for the stock variable is very large, having a typical value of approximately .8. It is several magnitudes longer than the next most important variable, E_j. Second, it can be seen that by introducing the migrant stock variable, the other explanatory variables continue being significant. Finally, this variable does not change the sign of any of the other explanatory variables. The last two effects, together with the relatively small partial correlation coefficients between $Stock_{ij}$ and D_{ij} ($r=-.14$), $Stock_{ij}$ and E_j ($r=-.28$), $Stock_{ij}$ and E_i ($r=-.07$), indicate that by following this simple test, no significant problem of multicollinearity exists.[8]

When we turn to the empirical findings of our regression analysis, we find that the model which includes the stock of migrants as an independent variable results highly explanatory ($\bar{R}^2$ .75) for

the linear, ratio, difference and allocative shares specifications. The value of $\bar{R}^2$ indicates that our model explains approximately 75 percent of the variance of total interprovincial migratory flows in terms of cost (D_{ij}, $Stock_{ij}$) and benefits (E_j, E_i, E_j/E_i, E_j-E_i). Moreover, the standard error of estimate (S.E.E.), which is simply the standard deviation of the actual rates of interprovincial migratory flows from the predicted rates of these flows, is significantly low, indicating, to a certain degree, a successful model. The signs of the coefficients of the explanatory variables indicate that the results of the estimated model do not reject the hypotheses deduced from our theory. Moreover, as can be seen in Tables 1 through 5, these signs are the same whether the stock of migrants is introduced or not. In addition, of the 27 coefficients in all five specifications, 26 are statistically significant at .01 (See t ratios in Tables 1 through 5), and one is significant at .10 (E_i in the linear specification). Thus, our findings corroborate the general hypothesis that migration is an investment in human capital. According to our results, costs and benefits explain the interprovincial migratory flows which occurred in Spain during the period 1960 to 1970.

As we stated, the hypotheses deduced from our theory were confirmed by the empirical results. First, the results indicate that distance between provinces is a deterrent factor in migratory movements. As distance between provinces increases, the rate of migratory flows decreases. The coefficient of this variable is always

negative and significant. This result indicates that uncertainty, cost of transportation, and separation from family, friends and familiar surroundings, discourage migration. Later on we will see that when we compare the trade-off between the elasticities of distance and earnings at destination, we find that the variable distance measures something more than the mere cost of transportation between provinces. Second, friends and relatives in the potential area of destination, measured by the migrant stock variable, attract migrants. The coefficient of this variable is always positive and significant. This result indicates that uncertainty about job possibilities in the province of destination as well as the transition costs of migration are important determinants in the choice of the province of destination. The individual tries to minimize uncertainty, and friends and relatives in the area of destination help the new migrant reach this objective. Third, our results indicate that earnings at destination, or alternatively the ratio (difference) of earnings between provinces, is a factor of attraction to migrants. The flow of migrants tends to go from provinces of low average per capita earnings towards provinces with high average per capita earnings, or a high ratio (difference) of earnings. The coefficients of the variables which measure earnings at destination and the ratio (difference) of earnings among provinces are always positive and significant. Moreover, the coefficient of earnings at origin in the linear model, which is always negative and significant, indicates that low average

earnings in a province tend to expel migrants.

The elasticities of the independent variables in relation to the rates of migratory flows and the standardized regression coefficients, or beta coefficients, reveal the relative importance of the explanatory variables. The beta coefficients express the effect of an equally likely change in the explanatory variables on the rates of migratory flows, while the elasticity values indicate the percentage change in the rates of interprovincial migratory flows that result from the percentage change in one explanatory variable, other variables being constant.[9] As Tables 1 through 5 and Table 6 show, an overall judgment based on all model specifications indicates that according to the value of the beta coefficients and the elasticities, the migrant stock variable is the most powerful one, followed by earnings and then distance. This order is maintained when the migrant stock variable is both present and absent.

Since the variables distance and the stock of migrants are proxies for both monetary and non-monetary costs and uncertainty, it is interesting to analyze how the elasticity of distance behaves when migrant stock is present and when it is not. According to our results, the elasticity of distance is approximately -.24 when the migrant stock variable is present in the equation, and approximately -1.25 when it is not. That is, with the migrant stock variable present, the response to distance is inelastic, and when it is absent, the response to distance is elastic, though still close to

Table 6

Elasticities Table (Total Migrants)[1]

Models	Linear	Ratio	Difference	Allocative Shares	Double Log Ratio[2]
Independent Variables					
D_{ij}	-.246	-.245	-.239	-.323	-.365
$Stock_{ij}$	.938	.938	.946	.747	.685
E_j	.726	----	----	1.168	----
E_i	-.266	----	----	----	----
E_j/E_i	----	.589	----	----	.460
E_j-E_i	----	----	.002	----	----

1) elasticities calculated at mean values
2) elasticities are coefficients in the Double Log Ratio Model

unity. As these results show, the introduction of the migrant stock variable in our equation reduces the deterrent effect of distance on migratory movements, even though our results indicate that even when the stock of migrants is introduced, distance between provinces still appears to be a significant deterrent.

Because of the greater flexibility of the linear model, and in order to compare our results with those found by others who have used this model for other countries, we will analyze the value of the elasticities of the explanatory variables obtained from this specification. As Table 6 shows, the elasticity of distance in the linear model is -.246. As the average distance for the 2,091 observations was 550 kilometers, the value of the elasticity of distance shows that a 10 percent or 55 kilometer increase in distance between provinces deters migration by as much as 2.5 percent. The elasticity of earnings at destination is .726. As the average per capita earnings in pesetas in 1960 was 24,368, the value of the elasticity of earnings at destination indicates that a 10 percent or 2,437 peseta increase in the average per capita earnings at destination attracts migrants by 7.3 percent. Thus, an increase in annual average per capita earnings of 2,437 pesetas at destination can apparently be offset by an increase in distance of 165 kilometers. Other studies have found the following tradeoff between distance and earnings at destination. Sahota, dealing with internal migration in Brazil, found that an annual increase in wages of 540 cruceiros (1950 prices) in the destination region will be cancelled

out by a 330 kilometer increase in distance.[10] Sjaastad, dealing with internal migration in the United States, found that the typical migrant will be indifferent between two destinations, one of which was 146 miles farther than the other, if average annual earnings were $106 (1947-49 dollars) higher in the more distant location.[11] From our results we can conclude that since the cost of transportation was not as high in 1960 as the tradeoff found between earnings at destination and distance, it appears that the variable distance is measuring something more than the mere cost of transportation. This is an important result, because it indicates that uncertainty is a relevant factor in the decision to migrate.[12] Its importance is underlined by the fact that the migrant stock variable, another proxy for information, was also present. The elasticity of earnings at origin is -.266. This indicates that a 10 percent increase in earnings at origin will decrease the rate of migration by 2.66 percent, which is approximately equivalent to the deterrent effect of distance. Finally, the elasticity of the stock of migrants is .938, indicating that a 10 percent increase in the amount of previous migrants in the province of destination will attract new migrants by 9.38 percent.

From these elasticity values, the following conclusions can be made. First, the lack of information, or uncertainty, is a very important factor in understanding the behavior of migrants. This is shown by the relative elasticities of the distance and migrant stock variables. Second, migrants take into consideration their expected lifetime earnings among alternative destinations when deciding if and

where to migrate. The allocative shares specification especially underlines this fact.

Finally, when comparing the different specifications in which the basic model has been examined empirically, we do not perceive significant differences in their performance. The one specification which, compared to the other four, explains the least amount of the variance of migratory flows is the double log ratio form. It explains approximately 70 percent of the variance, while the others explain approximately 75 percent. Although we do not perceive significant differences in their performance, each model adds its own contribution to the understanding of the phenomenon of interprovincial migratory flows in Spain. The linear model, by separating earnings at origin from earnings at destination, allows us to compare the influence of these two variables in migratory flows. The allocative shares model, which deals exclusively with the choice of the destination area among alternative possibilities, helps us understand the relative attractiveness of certain provinces over others. Finally, the ratio and difference specifications consider earnings at origin and destination as one explanatory variable, and, thus, integrate the relative importance of earnings in order to explain migratory movements.

Continuing with the basic model for the period 1960 to 1970, we will now analyze the empirical results obtained from the separation of migrants according to sex. The estimated equations of the economic determinants of male and female rates of interprovincial migratory flows are summarized in Tables 7 through 11. As these tables

Table 7

Interprovincial Migration in Spain, 1960 to 1970

Linear Model: $M_{ij}/P_i = a_0 - a_1 D_{ij} + a_2 E_j - a_3 E_i + a_4 Stock_{ij} + u$ -- O.L.S.

Independent Variables	Male Migrants				Female Migrants			
	Coefficients[1]	Elasticities[2]	Coefficients[1]	Elasticities[2]	Coefficients[1]	Elasticities[2]	Coefficients[1]	Elasticities[2]
D_{ij}	-.000954*** t=(-2.585) b=(-.029)	-.219	-.005374*** t=(-7.873) b=(-.162)	-1.231	-.001299*** t=(-3.205) b=(-.037)	-.288	-.005916*** t=(-8.176) b=(-.168)	-1.310
E_j	.000068*** (3.941) (.045)	.701	.000426*** (13.664) (.282)	4.367	.000073*** (3.842) (.046)	.724	.000447*** (13.520) (.278)	4.423
E_i	-.000029** (-1.724) (-.019)	-.296	-.000117*** (-3.722) (-.077)	-1.195	-.000025* (-1.394) (-.016)	-.253	-.000118*** (-3.532) (-.073)	-1.160
$Stock_{ij}$	.000934*** (72.463) (.844)	.935	----	----	.000976*** (68.938) (.832)	.943	----	----
Constant	-.289		-2.224		-.312		-2.349	
	$\bar{R}^2$=.747 S.E.E.=.0044 No. of runs of signs=932 D.W.=2.134 V.N.=2.135 N=2,091		$\bar{R}^2$=.111 S.E.E.=.0083 No. of runs of signs=791 D.W.=1.500 V.N.=1.501 N=2,091		$\bar{R}^2$=.729 S.E.E.=.0048 No. of runs of signs=907 D.W.=2.137 V.N.=2.138 N=2,091		$\bar{R}^2$=.111 S.E.E.=.0088 No. of runs of signs=757 D.W.=1.494 V.N.=1.495 N=2,091	

Notes: See Table 1.

Table 8

Interprovincial Migration in Spain, 1960 to 1970

Ratio Model: $M_{ij}/P_i = a_0 - a_1 D_{ij} + a_2 E_j/E_i + a_3 Stock_{ij} + u$ -- O.L.S.

Independent Variables	Male Migrants				Female Migrants			
	Coefficients[1]	Elasticities[2]	Coefficients[1]	Elasticities[2]	Coefficients[1]	Elasticities[2]	Coefficients[1]	Elasticities[2]
D_{ij}	-.000952*** t=(-2.582) b=(-.029)	-.218	-.005342*** t=(-7.792) b=(-.161)	-1.224	-.001290*** t=(-3.186) b=(-.037)	-.286	-.005812*** t=(-8.086) b=(-.168)	-1.302
E_j/E_i	1.355172*** (4.610) (.526)	.599	7.164310*** (13.467) (.279)	3.174	1.339185*** (4.158) (.049)	.573	7.416490*** (13.144) (.275)	3.173
$Stock_{ij}$	.000935*** (73.023) (.844)	.935	----	----	.000977*** (69.505) (.833)	.944	----	----
Constant	-.752		-2.260		-.571		-2.148	
	$\bar{R}^2$=.747 S.E.E.=.0044 No. of runs of signs=983 D.W.=2.126 V.N.=2.127 N=2,091		$\bar{R}^2$=.103 S.E.E.=.0084 No. of runs of signs=887 D.W.=1.480 V.N.=1.480 N=2,091		$\bar{R}^2$=.728 S.E.E.=.0048 No. of runs of signs=983 D.W.=2.130 V.N.=2.131 N=2,091		$\bar{R}^2$=.101 S.E.E.=.0088 No. of runs of signs=881 D.W.=1.475 V.N.=1.476 N=2,091	

Notes: See Table 1.

Table 9

Interprovincial Migration in Spain, 1960 to 1970

Difference Model: $M_{ij}/P_i = a_0 - a_1 D_{ij} + a_2(E_j - E_i) + a_3 Stock_{ij} + u$ -- O.L.S.

Independent Variables	Male Migrants				Female Migrants			
	Coefficients[1]	Elasticities[2]	Coefficients[1]	Elasticities[2]	Coefficients[1]	Elasticities[2]	Coefficients[1]	Elasticities[2]
D_{ij}	-.000931*** t=(-2.522) b=(-.028)	-.213	-.005308*** t=(-7.690) b=(-.160)	-1.217	-.001271*** t=(-3.136) b=(-.036)	-.281	-.005845*** t=(-7.988) b=(-.167)	-1.294
$(E_j - E_i)$	.000048*** (3.976) (.045)	.002	.00273*** (12.309) (.257)	.009	.000049*** (3.669) (.043)	.002	.000284*** (12.070) (.252)	.009
$Stock_{ij}$	.000937*** (2.830) (.847)	.938	----	----	.00980*** (70.015) (.835)	.947	----	----
Constant	.651		5.256		.819		5.633	
	$\bar{R}^2$=.747 S.E.E.=.0044 No. of runs of signs=1,009 D.W.=2.128 V.N.=2.129 N=2,091		$\bar{R}^2$=.091 S.E.E.=.0084 No. of runs of signs=909 D.W.=1.485 V.N.=1.486 N=2,091		$\bar{R}^2$=.728 S.E.E.=.0048 No. of runs of signs=995 D.W.=2.131 V.N.=2.132 N=2,091		$\bar{R}^2$=.090 S.E.E.=.0089 No. of runs of signs=891 D.W.=1.480 V.N.=1.480 N=2,091	

Notes: See Table 1.

Table 10

Interprovincial Migration in Spain, 1960 to 1970

Allocative Shares Model: $M_{ij}/Out_i = a_0 - a_1 D_{ij} + a_2 E_j + a_3 Stock_{ij} + u$ -- O.L.S.

Independent Variables	Male Migrants				Female Migrants			
	Coefficients[1]	Elasticities[2]	Coefficients[1]	Elasticities[2]	Coefficients[1]	Elasticities[2]	Coefficients[1]	Elasticities[2]
D_{ij}	-.005709*** t=(-4.338) b=(-.047)	-.289	-.021742*** t=(-8.843) b=(-.179)	-1.104	-.007148*** t=(-4.829) b=(-.054)	-.337	-.024381*** t=(-9.105) b=(-.185)	-1.151
E_j	.000500*** (8.079) (.090)	1.134	.001799*** (15.998) (.325)	4.079	.000570*** (8.183) (.095)	1.202	.001966*** (16.055) (.326)	4.145
$Stock_{ij}$	.003371*** (73.528) (.834)	.747	----	----	.003624*** (70.275) (.822)	.747	----	----
Constant	-6.360		21.231		-7.067		-23.052	
	$\bar{R}^2$=.759 S.E.E.=.0158 No. of runs of signs=1,006 D.W.=2.084 V.N.=2.085 N=2,091		$\bar{R}^2$=.136 S.E.E.=.0300 No. of runs of signs=715 D.W.=1.170 V.N.=1.171 N=2,091		$\bar{R}^2$=.744 S.E.E.=.0178 No. of runs of signs=885 D.W.=s.114 V.N.=2.115 N=2,091		$\bar{R}^2$=.138 S.E.E.=.0327 No. of runs of signs=697 D.W.=1.158 V.N.=1.159 N=2,091	

Notes: See Table 1.

Table 11

Interprovincial Migration in Spain, 1960 to 1970

Double Log Ratio Model: $\text{Log}(M_{ij}/P_i)-a_0-a_1\text{Log}D_{ij}+a_2\text{Log}(E_j/E_i)+a_3\text{Log Stock}_{ij}+u$--O.L.S.

	Male Migrants		Female Migrants	
Independent Variables	Coefficients	Coefficients	Coefficients	Coefficients
D_{ij}	-.345*** t=(-8.809) b=(-.126)	-1.147*** t=(-22.950) b=(-.420)	-.388 t=(-10.683) b=(-.144)	-1.194*** t=(-24.695) b=(-.444)
(E_j/E_i)	.472*** (6.527) (.092)	1.801*** (19.071) (.349)	.475*** (7.082) (.094)	1.809*** (19.818) (.356)
Stock_{ij}	.684*** (46.239) (.713)	----	.687*** (50.110) (.727)	----
Constant	-9.767	-.688	-9.519	-.398
	$\bar{R}^2$=.653 S.E.E.=.9626 No. of runs of signs=872 D.W.=1.727 V.N.=1.728 N=2,091	$\bar{R}^2$=.298 S.E.E.=1.369 No. of runs of signs=744 D.W.=.9969 V.N.=.9974 N=2,091	$\bar{R}^2$=.693 S.E.E.=.8924 No. of runs of signs=878 D.W.=1.698 V.N.=1.699 N=2,091	$\bar{R}^2$=.324 S.E.E.=1.324 No. of runs of signs=694 D.W.=.9081 V.N.=.9086 N=2,091

Notes: See Table 1.

show, there is no significant difference between the behavior of males and females as migrants. For both, all the variables have the same sign, indicating that the direction of influence of costs and benefits affect them in the same way. In addition, all the variables are significant and equally so for both. Moreover, the models explain the same amount of variance in both cases, which is confirmed by the application of the Chow test.[13] The only difference between male and female migrants is found in the deterrent effect of distance. Distance deters the interprovincial flow of female migrants more than it does the interprovincial flow of male migrants. As Table 12 shows, the elasticity of migratory flows with respect to distance is approximately -.26 for males and -.31 for females. To summarize, our results show that male and female migrants react to the same economic opportunities.

The basic model for the period 1960 to 1970 has also been examined empirically for migrants who were in the following age groups: 10 to 24 years, 25 to 49 years, and above 50 years. The empirical results obtained are presented in Tables 13 to 21. Even though the age categories are not the ideal ones to be examined, the regression results illustrate a certain degree of difference in behavior among the different age groups. First, less variance is explained for migrants between 10 and 24 years of age than for the rest, even though the explained variances for all three groups are not very different ($\bar{R}^2$ for migrants between 10 and 24 years is approximately .70, while it is approximately .75 for the other two groups). The

Table 12

Elasticities Table (Male--Female)[1]

Models	Linear		Ratio		Difference		Allocative Shares		Double Log Ratio[2]	
Independent Variables	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female
D_{ij}	-.218	-.287	-.218	-.285	-.213	-.281	-.285	-.337	-.345	-.388
$Stock_{ij}$	.935	.943	.935	.944	.938	.947	.747	.747	.685	.687
E_j	.700	.724	----	----	----	----	1.134	1.202	----	----
E_i	-.296	-.253	----	----	----	----	----	----	----	----
E_j/E_i	----	----	.598	.572	----	----	----	----	.472	.475
E_j-E_i	----	----	----	----	.002	.002	----	----	----	----

1) elasticities calculated at mean values
2) elasticities are coefficients in the Double Log Ratio Model

Table 13

Interprovincial Migration in Spain, 1960 to 1970

Linear Model: $M_{ij}/P_i = a_0 - a_1 D_{ij} + a_2 E_j - a_3 E_i + a_4 Stock_{ij} + u$ --O.L.S.

	Age Groups							
	10 to 24 years				25 to 49 years			
Independent Variables	Coefficients[1]	Elasticities[2]	Coefficients[1]	Elasticities[2]	Coefficients[1]	Elasticities[2]	Coefficients[1]	Elasticities[2]
D_{ij}	-.001517*** t=(-2.517) b=(-.031)	-.248	-.007895*** t=(-7.713) b=(-.160)	-1.287	-.001893*** t=(-3.595) b=(-.408)	-.298	-.007991*** t=(-8.403) b=(-.172)	-1.259
E_j	.000092*** (3.233) (.041)	.668	.000609*** (12.999) (.269)	4.432	.000129*** (5.195) (.061)	.906	.000623*** (14.320) (.294)	4.384
E_i	-.000048** (-1.753) (-.021)	-.350	-.000175*** (-3.716) (-.077)	-1.272	-.000037* (-1.534) (-.017)	-.258	-.000158*** (-3.614) (-.074)	-1.111
$Stock_{ij}$	.001348*** (64.027) (.816)	.960	----	----	.001289*** (70.112) (.832)	.887	----	----
Constant	-.104		-2.919		-.818		-3.510	
	$\bar{R}^2$=.698 S.E.E.=.0073 No. of runs of signs=929 D.W.=2.074 V.N.=2.075 N=2,091		$\bar{R}^2$=.103 S.E.E.=.0124 No. of runs of signs=791 D.W.=1.485 V.N.=1.486 N=2,091		$\bar{R}^2$=.738 S.E.E.=.0063 No. of runs of signs=871 D.W.=2.163 V.N.=2.164 N=2,091		$\bar{R}^2$=.121 S.E.E.=.0116 No. of runs of signs=765 D.W.=1.496 V.N.=1.497 N=2,091	

Notes: See Table 1.

Table 14

Interprovincial Migration in Spain, 1960 to 1970

Linear Model: $M_{ij}/P_i = a_0 - a_1 D_{ij} + a_2 E_j - a_3 E_i + a_4 Stock_{ij} + u$ -- O.L.S.

Independent Variables	Age Groups: 50 or more years			
	Coefficients[1]	Elasticities[2]	Coefficients[1]	Elasticities[2]
D_{ij}	-.000789*** t=(-2.768) b=(-.030)	-.228	-.004436*** t=(-8.019) b=(-.166)	-1.283
E_j	.000037*** (2.741) (.030)	.475	.000332*** (13.133) (.272)	4.292
E_i	-.000016 (-1.233) (-.013)	-.207	-.000088*** (-3.482) (-.072)	-1.143
$Stock_{ij}$	.000771*** (77.425) (.862)	.974	----	----
Constant	-.024421		-1.63393	
	$\bar{R}^2$=.769 S.E.E.=.0034 No. of runs of signs=935 D.W.=2.090 V.N.=2.091 N=2,091		$\bar{R}^2$=.106 S.E.E.=.0067 No. of runs of signs=783 D.W.=1.494 V.N.=1.494 N=2,091	

Notes: See Table 1.

Table 15

Interprovincial Migration in Spain, 1960 to 1970

Ratio Model: $M_{ij}/P_i = a_0 - a_1 D_{ij} + a_2 E_j/E_i + a_3 Stock_{ij} + u$ -- O.L.S.

Independent Variables	Age Groups: 10 to 24 years				25 to 49 years			
	Coefficients[1]	Elasticities[2]	Coefficients[1]	Elasticities[2]	Coefficients[1]	Elasticities[2]	Coefficients[1]	Elasticities[2]
D_{ij}	-.001519*** t=(-2.524) b=(-.031)	-.248	-.007851*** t=(-7.643) b=(-.159)	-1.280	-.001872*** t=(-3.558) b=(-.404)	-.295	-.007941*** t=(-8.302) b=(-.171)	-1.251
E_j/E_i	1.908875*** (3.986) (.049)	.602	1.029148*** (12.912) (.268)	3.224	2.257660*** (5.396) (.063)	.688	10.292000*** (13.869) (.286)	3.134
$Stock_{ij}$	.001347*** (64.486) (.816)	.959	----	-----	.001291*** (70.735) (.833)	.889	----	----
Constant	-1.049		3.224		-.975		-3.059	
	$\bar{R}^2$=.697 S.E.E.=.0072 No. of runs of signs=977 D.W.=2.070 V.N.=2.071 N=2,091		$\bar{R}^2$=.096 S.E.E.=.0125 No. of runs of signs=939 D.W.=1.468 V.N.=1.469 N=2,091		$\bar{R}^2$=.738 S.E.E.=.0063 No. of runs of signs=971 D.W.=2.149 V.N.=2.150 N=2,091		$\bar{R}^2$=.110 S.E.E.=.0116 No. of runs of signs=901 D.W.=1.472 V.N.=1.472 N=2,091	

Notes: See Table 1.

Table 16

Interprovincial Migration in Spain, 1960 to 1970

Ratio Model: $M_{ij}/P_i = a_0 - a_1 D_{ij} + a_2 E_j/E_i + a_3 Stock_{ij} + u$ -- O.L.S.

Independent Variables	Age Groups: 50 or more years			
	Coefficients[1]	Elasticities[2]	Coefficients[1]	Elasticities[2]
D_{ij}	-.000788*** t=(-2.767) b=(-.029)	-.228	-.004410*** t=(-7.935) b=(-.165)	-1.275
E_j/E_i	.726800*** (3.209) (.035)	.406	5.522097*** (12.807) (.266)	3.087
$Stock_{ij}$	.000771*** (77.997) (.862)	.974	----	----
Constant	-.287		-1.531	
	$\bar{R}^2$=.769 S.E.E.=.0034 No. of runs of signs=975 D.W.=2.085 V.N.=2.086 N=2,091		$\bar{R}^2$=.097 S.E.E.=.0067 No. of runs of signs=869 D.W.=1.475 V.N.=1.475 N=2,091	

Notes: See Table 1.

Table 17

Interprovincial Migration in Spain, 1960 to 1970

Difference Model: $M_{ij}/P_i = a_0 - a_1 D_{ij} + a_2(E_j - E_i) + a_3 Stock_{ij} + u$ -- O.L.S.

Independent Variables	Age Groups: 10 to 24 years		25 to 49 years	
	Coefficients[1]	Elasticities[2]	Coefficients[1]	Elasticities[2]
D_{ij}	-.000149*** t=(-2.475) b=(-.030)	-.243	-.007802*** t=(-7.549) b=(-.158)	-1.272
$E_j - E_i$	.000069*** (3.506) (.436)	.002	.000394*** (11.849) (.248)	.009
$Stock_{ij}$	.009337*** (2.487) (.818)	.963	----	----
Constant	.934		7.573	
	$\bar{R}^2$=.697 S.E.E.=.0072 No. of runs of signs=987 D.W.=2.071 V.N.=2.072 N=2,091		$\bar{R}^2$=.0857 S.E.E.=.0126 No. of runs of signs=895 D.W.=1.473 V.N.=1.473 N=2,091	

Independent Variables	Age Groups: 25 to 49 years	
	Coefficients[1]	Elasticities[2]
D_{ij}	-.001837*** t=(-3.488) b=(-.039)	-.289
$E_j - E_i$	.000081*** (4.705) (.054)	.002
$Stock_{ij}$	.001297*** (71.272) (.836)	.892
Constant	1.369	
	$\bar{R}^2$=.737 S.E.E.=.0063 No. of runs of signs=957 D.W.=2.152 V.N.=2.153 N=2,091	

Independent Variables	Age Groups: 25 to 49 years	
	Coefficients[1]	Elasticities[2]
D_{ij}	-.007891*** t=(-8.192) b=(-.170)	-1.243
$E_j - E_i$	.000392*** (12.674) (.263)	.009
$Stock_{ij}$	----	----
Constant	7.739	
	$\bar{R}^2$=.097 S.E.E.=.0117 No. of runs of signs=903 D.W.=2.478 V.N.=1.479 N=2,091	

Notes: See Table 1.

Table 18

Interprovincial Migration in Spain, 1960 to 1970

Difference Model: $M_{ij}/P_i = a_0 - a_1 D_{ij} + a_2(E_j - E_i) + a_3 Stock_{ij} + u$ -- O.L.S.

Age Groups

Independent Variables	50 or more years			
	Coefficients[1]	Elasticities[2]	Coefficients[1]	Elasticities[2]
D_{ij}	-.000776*** t=(-2.727) b=(-.029)	-.225	-.004383*** t=(-7.841) b=(-.164)	-1.267
$(E_j - E_i)$	.000026*** (2.794) (.030)	.002	.000211*** (11.770) (.246)	.009
$Stock_{ij}$	.000773*** (78.531) (.864)	.976	----	----
Constant	.468		4.262	
	$\bar{R}^2$=.769 S.E.E.=.0034 No. of runs of signs=985 D.W.=2.086 V.N.=2.089 N=2,091		$\bar{R}^2$=.086 S.E.E.=.0068 No. of runs of signs=889 D.W.=1.479 V.N.=1.480 N=2,091	

Notes: See Table 1.

Table 19

Interprovincial Migration in Spain, 1960 to 1970

Allocative Shares Model: $M_{ij}/Out_i = a_0 - a_1 D_{ij} + a_2 E_j + a_3 Stock_{ij} + u$ -- O.L.S.

Independent Variables	Age Groups: 10 to 24 years				25 to 49 years			
	Coefficients[1]	Elasticities[2]	Coefficients[1]	Elasticities[2]	Coefficients[1]	Elasticities[2]	Coefficients[1]	Elasticities[2]
D_{ij}	-.003032*** t=(-3.249) b=(-.035)	-.228	-.014494*** t=(-3.265) b=(-.169)	-1.090	-.007674*** t=(-5.531) b=(-.064)	-.376	-.022900*** t=(-9.548) b=(-.192)	-1.122
E_j	.000324*** (7.370) (.082)	1.087	.001252*** (15.611) (.319)	4.207	.000615*** (9.425) (.113)	1.347	.001349*** (16.777) (.338)	4.047
$Stock_{ij}$	.002410*** (74.141) (.839)	.792	----	----	.003204*** (66.274) (.802)	.685	----	----
Constant	-4.722		-15.353		-7.306		-21.435	
	$\bar{R}^2$=.760 S.E.E.=.0112 No. of runs of signs=869 D.W.=2.054 V.N.=2.055 N=2,091		$\bar{R}^2$=.129 S.E.E.=.0214 No. of runs of signs=695 D.W.=1.154 V.N.=1.155 N=2,091		$\bar{R}^2$=.726 S.E.E.=.0167 No. of runs of signs=993 D.W.=2.090 V.N.=2.091 N=2,091		$\bar{R}^2$=.149 S.E.E.=.0294 No. of runs of signs=719 D.W.=1.157 V.N.=1.158 N=2,091	

Notes: See Table 1.

Table 20

Interprovincial Migration in Spain, 1960 to 1970

Allocative Shares Model: $M_{ij}/Out_i = a_0 - a_1 D_{ij} + a_2 E_j + a_3 Stock_{ij} + u$ -- O.L.S.

	Age Groups: 50 or more years			
Independent Variables	Coefficients[1]	Elasticities[2]	Coefficients[1]	Elasticities[2]
D_{ij}	-.002959*** t=(-5.016) b=(-.062)	-.409	-.009070*** t=(-9.201) b=(-.189)	-1.257
E_j	.000147*** (5.298) (.067)	.909	.000643*** (14.244) (.292)	3.975
$Stock_{ij}$	.001287*** (62.632) (.800)	.778	----	----
Constant	-1.095		-6.772	
	$\bar{R}^2$=.694 S.E.E.=.0071 No. of runs of signs=907 D.W.=2.101 V.N.=2.102 N=2,091		$\bar{R}^2$=.119 S.E.E.=.0120 No. of runs of signs=935 D.W.=1.254 V.N.=1.254 N=2,091	

Notes: See Table 1.

Table 21

Interprovincial Migration in Spain, 1960 to 1970

Double Log Ratio Model: $\text{Log}(M_{ij}/P_i)=a_0-a_1\text{Log}D_{ij}+a_2\text{Log}(E_j/E_i)+a_3\text{LogStock}_{ij}+u$--O.L.S.

	Age Groups					
	10 to 24 years		25 to 49 years		50 or more years	
Independent Variables	Coefficients	Coefficients	Coefficients	Coefficients	Coefficients	Coefficients
D_{ij}	-.420*** t=(-5.994) b=(-.122)	-1.089*** t=(-15.681) b=(-.315)	-.356*** t=(-9.512) b=(-.134)	-1.142*** t=(-23.598) b=(-.430)	-.295*** t=(-2.928) b=(-.068)	-.737*** t=(-7.971) b=(-.170)
E_j/E_i	.445*** (3.438) (.068)	1.554*** (11.839) (.238)	.443*** (6.405) (.088)	1.744*** (19.084) (.348)	.298* (1.603) (.037)	1.031*** (5.898) (.126)
Stock_{ij}	.571*** (21.586) (.469)	----	.669*** (47.364) (.717)	----	.376*** (9.904) (.248)	----
Constant	-8.203	-.623	-9.146	-.256	-7.882	-2.878
	$\bar{R}^2$=.309 S.E.E.=1.721 No. of runs of signs=878 D.W.=1.795 V.N.=1.796 N=2,091	$\bar{R}^2$=.155 S.E.E.=1.903 No. of runs of signs=736 D.W.=1.507 V.N.=1.507 N=2,091	$\bar{R}^2$=.665 S.E.E.=.9201 No. of runs of signs=1,045 D.W.=1.755 V.N.=1.756 N=2,091	$\bar{R}^2$=.305 S.E.E.=1.325 No. of runs of signs=714 D.W.=.9897 V.N..9901 N=2,091	$\bar{R}^2$=.0866 S.E.E.=2.476 No. of runs of signs=710 D.W.=1.960 V.N.=1.961 N=2,091	$\bar{R}^2$=.044 S.E.E.=2.533 No. of runs of signs=736 D.W.=1.881 V.N.=1.882 N=2,091

Notes: See Table 1.

signs of the coefficients of the explanatory variables for all age groups and for all the variables are always the ones theoretically expected. In other words, distance is a deterrent to migration for all age groups. Individuals in the three age groups tend to move from provinces with low earnings to those with higher earnings. Finally, the presence of friends and relatives in the province of destination attracts migrants of all ages to that province. All the explanatory variables appear to be significant for each age group. The only variables which are not always significant are earnings at origin in the linear model, and the ratio of earnings in the double log ratio model. These variables are not significant for migrants above 50 years of age.

A more illustrative way of perceiving behavioral differences in migrants according to age groups is to look at the elasticities of the explanatory variables. As Tables 22 and 23 show, earnings affect the age groups differently, in the sense that earnings at destination (ratio of earnings) is more elastic for the 25 to 49 year age group, followed by the 10 to 24 year age group, and finally by the above 50 year age group. Earnings at origin are more elastic for 10 to 24 year old migrants than for the 25 to 49 year old migrants, and for the 25 to 49 year old migrants than for the ones above 50 years of age. With respect to the elasticity of distance, no significant differences are perceived. Finally, the elasticity of the migrant stock variable is higher for the 10 to 24 year age group than for the other two groups. These results were expected

Table 22

Elasticities Table (Age Groups)[1]

Models	Linear			Ratio			Difference		
Age	10 to 24	25 to 49	50 or more	10 to 24	25 to 49	50 or more	10 to 24	25 to 49	50 or more
Independent Variables									
D_{ij}	-.247	-.298	-.228	-.247	-.295	-.228	-.243	-.289	-.225
$Stock_{ij}$	.960	.887	.974	.959	.888	.974	.962	.892	.976
E_j	.668	.906	.475	----	----	----	----	----	----
E_i	-.350	-.258	-.207	----	----	----	----	----	----
E_j/E_i	----	----	----	.601	.687	.406	----	----	----
E_j-E_i	----	----	----	----	----	----	.002	.002	.002

1) elasticities calculated at mean values

Table 23

Elasticities Table (Age Groups)[1]

Models	Allocative Shares			Double Log Ratio[2]		
Age	10 to 24	25 to 49	50 or more	10 to 24	25 to 49	50 or more
Independent Variables						
D_{ij}	-.228	-.376	-.409	-.420	-.356	-.295
$Stock_{ij}$	.791	.685	.778	.571	.669	.376
E_j	1.087	1.347	.909	----	----	----
E_i	----	----	----	----	----	----
E_j/E_i	----	----	----	.445	.443	.298
E_j-E_i	----	----	----	----	----	----

1) elasticities calculated at mean values
2) elasticities are coefficients in the Double Log Ratio Model

and indicate that the group that reacts more to earnings is the 25 to 49 year age group. Moreover, it is interesting to note that earnings at origin in the linear model is more of a push factor for the 10 to 24 year old migrants than for the other two age groups. This result is an indication that all age groups, and especially the youngest one, tend to leave the poor provinces and go to the richer ones. Finally, it seems that those who are more affected by uncertainty are the migrants in the 10 to 24 year age group.

Four other applications of the basic model have been made for the study of interprovincial migratory flows in Spain. Each identifies the provinces of destination by means of different criteria: provinces that had net in-migration for the period 1960 to 1970, provinces that had net out-migration for the period 1960 to 1970, the four leading provinces of attraction, and the major provinces of expulsion. We have applied our basic model to these different subsamples in order to see if there are different explanations for the flow of migrants towards relatively rich provinces and for the flow to relatively poor ones. As we stated in our descriptive analysis, there seems to exist a direct relationship between rich provinces and the amount of net in-migration, and poor provinces and the amount of net out-migration. We have also made these applications in order to try to roughly control for return migrants, since, in general, our a priori information indicates that the relatively poor provinces receive greater amounts of return migrants than do the rel-

atively richer provinces.

The regression results of the applications that consider the provinces of net in-migration and net out-migration to be destination areas are reported in Tables 24 through 28. As these tables show, there exist some appreciable differences in the results of these two model applications. First, the amount of explained variance in the rate of migratory flows is appreciably higher when the provinces of net in-migration rather than the provinces of net out-migration are considered as destination areas. $\overline{R}^2$ is approximately .75 (in the double log specification it is .81) for the provinces of net in-migration and .63 (in the double log specification it is .54 and in the allocative shares model it is .58) for the provinces of net out-migration. This seems to indicate that economic factors are more relevant to migrants who go to provinces with net in-migration than to those migrants who move to provinces with net out-migration. It confirms our a priori expectations. Second, when analyzing the coefficients of the explanatory variables, we see that there exists a significant difference between the explanatory power of earnings at origin and that of earnings at destination, depending on which provinces we consider to be destination areas. In the model application which considers provinces with net in-migration to be destination areas, all the coefficients of the explanatory variables have the sign which was theoretically expected. In other words, distance is a deterrent, while earnings at destination, the ratio (difference) of earnings between provinces, and the stock of migrants are all factors

Table 24

Interprovincial Migration in Spain, 1960 to 1970

Linear Model: $M_{ij}/P_i = a_0 - a_1 D_{ij} + a_2 E_j - a_3 E_i + a_4 Stock_{ij} + u$ --O.L.S.

Independent Variables	Provinces with net in-migration: Coefficients[1]	Elasticities[2]	Provinces with net in-migration: Coefficients[1]	Elasticities[2]	Provinces with net out-migration: Coefficients[1]	Elasticities[2]	Provinces with net out-migration: Coefficients[1]	Elasticities[2]
D_{ij}	-.007362*** t=(-4.787) b=(-.103)	-.474	-.018301*** t=(-6.528) b=(-.256)	-1.178	-.000753*** t=(-6.673) b=(-.112)	-.538	-.002475*** t=(-15.438) b=(-.368)	-1.767
E_j	.000046 (.655) (.014)	.159	.000486*** (3.821) (.148)	1.695	.000035*** (5.376) (.085)	1.039	.000079*** (7.945) (.189)	2.299
E_i	-.000201*** (-2.795) (-.060)	-.572	-.000613*** (-4.637) (-.181)	-1.742	.000004 (.770) (.012)	.118	-.000002 (-.342) (-.008)	-.080
$Stock_{ij}$	.001167*** (38.045) (.827)	.849	----	----	.000584*** (43.863) (.739)	.662	----	----
Constant	8.831		18.934		-.215		.418	
	$\bar{R}^2$=.742 S.E.E.=.0099 No. of runs of signs=295 D.W.=2.113 V.N.=2.117 N=596		$\bar{R}^2$=.111 S.E.E.=.0183 No. of runs of signs=203 D.W.=1.505 V.N.=1.508 N=596		$\bar{R}^2$=.633 S.E.E.=.0011 No. of runs of signs=604 D.W.=2.018 V.N.=2.020 N=1,495		$\bar{R}^2$=.161 S.E.E.=.0016 No. of runs of signs=561 D.W.=1.851 V.N.=1.852 N=1,495	

Notes: See Table 1.

Table 25

Interprovincial Migration in Spain, 1960 to 1970

Ratio Model: $M_{ij}/P_i = a_0 - a_1 D_{ij} + a_2 E_j/E_i + a_3 Stock_{ij} + u$ -- O.L.S.

Independent Variables	Provinces with net in-migration: Coefficients[1]	Elasticities[2]	Provinces with net in-migration: Coefficients[1]	Elasticities[2]	Provinces with net out-migration: Coefficients[1]	Elasticities[2]	Provinces with net out-migration: Coefficients[1]	Elasticities[2]
D_{ij}	-.006985*** t=(-4.602) b=(-.098)	-.449	-.017932*** t=(-6.506) b=(-.251)	-1.154	-.000689*** t=(-6.102) b=(-.102)	-.492	-.002386*** t=(-14.777) b=(-.354)	-1.704
E_j/E_i	2.879301*** (2.609) (.056)	.435	12.591842*** (6.342) (.245)	1.904	.265194*** (2.625) (.042)	.334	.770426*** (5.049) (.121)	.971
$Stock_{ij}$	.001165*** (37.895) (.825)	.848	----	----	.000590*** (44.258) (.747)	.669	----	----
Constant	1.415		2.125		.373		1.323	
	$\bar{R}^2$=.742 S.E.E.=.0099 No. of runs of signs=291 D.W.=2.128 V.N.=2.132 N=596		$\bar{R}^2$=.119 S.E.E.=.0183 No. of runs of signs=205 D.W.=1.500 V.N.=1.503 N=596		$\bar{R}^2$=.628 S.E.E.=.0010 No. of runs of signs=612 D.W.=1.994 V.N.=1.995 N=1,495		$\bar{R}^2$=.141 S.E.E.=.0016 No. of runs of signs=580 D.W.=1.833 V.N.=1.834 N=1,495	

Notes: See Table 1.

Table 26

Interprovincial Migration in Spain, 1960 to 1970

Difference Model: $M_{ij}/P_i = a_0 - a_1 D_{ij} + a_2(E_j - E_i) + a_3 Stock_{ij} + u$ -- O.L.S.

Independent Variables	Provinces with net in-migration: Coefficients[1]	Elasticities[2]	Provinces with net in-migration: Coefficients[1]	Elasticities[2]	Provinces with net out-migration: Coefficients[1]	Elasticities[2]	Provinces with net out-migration: Coefficients[1]	Elasticities[2]
D_{ij}	-.006977*** t=(-4.592) b=(-.098)	-.449	-.017987*** t=(-6.509) b=(-.252)	-1.158	-.000687*** t=(-6.085) b=(-.102)	-.491	-.002382*** t=(-14.743) b=(-.354)	-1.700
$(E_j - E_i)$	.000121*** (2.423) (.052)	.077	.000547*** (6.083) (.235)	.350	.000010*** (2.557) (.041)	.027	.000029*** (4.995) (.119)	.079
$Stock_{ij}$	.001167*** (37.989) (.827)	.849	----	----	.000591*** (44.262) (.747)	.669	----	----
Constant	4.447		15.381		.648		2.122	
	$\bar{R}^2$=.741 S.E.E.=.0099 No. of runs of signs=289 D.W.=2.130 V.N.=2.133 N=596		$\bar{R}^2$=.112 S.E.E.=.0183 No. of runs of signs=205 D.W.=1.510 V.N.=1.512 N=596		$\bar{R}^2$=.628 S.E.E.=.0011 No. of runs of signs=612 D.W.=1.989 V.N.=1.991 N=1,495		$\bar{R}^2$=.140 S.E.E.=.0016 No. of runs of signs=574 D.W.=1.827 V.N.=1.829 N=1,495	

Notes: See Table 1.

Table 27

Interprovincial Migration in Spain, 1960 to 1970

Allocative Shares Model: $M_{ij}/Out_i = a_0 - a_1 D_{ij} + a_2 E_j + a_3 Stock_{ij} + u$ -- O.L.S.

	Provinces with net in-migration				Provinces with net out-migration			
Independent Variables	Coefficients[1]	Elasticities[2]	Coefficients[1]	Elasticities[2]	Coefficients[1]	Elasticities[2]	Coefficients[1]	Elasticities[2]
D_{ij}	-.048229*** t=(-5.384) b=(-.114)	-.437	-.105255*** t=(-6.395) b=(-.249)	-.953	-.003591*** t=(-3.321) b=(-.059)	-.279	-.018829*** t=(-12.867) b=(-.313)	-1.464
E_j	.000839** (2.041) (.043)	.411	.003517*** (4.657) (.182)	1.721	.000266*** (4.192) (.071)	.847	.000647*** (7.135) (.174)	2.058
$Stock_{ij}$	.006861*** (38.299) (.824)	.702	----	----	.005143*** (40.278) (.728)	.634	----	----
Constant	19.556		13.981		-1.411		2.846	
	$\bar{R}^2$=.741 S.E.E.=.0585 No. of runs of signs=267 D.W.=2.135 V.N.=2.139 N=596		$\bar{R}^2$=.101 S.E.E.=.1090 No. of runs of signs=173 D.W.=1.205 V.N.=1.207 N=596		$\bar{R}^2$=.578 S.E.E.=.0103 No. of runs of signs=722 D.W.=2.006 V.N.=2.007 N=1,495		$\bar{R}^2$=.121 S.E.E.=.0149 No. of runs of signs=637 D.W.=1.820 V.N.=1.821 N=1,495	

Notes: See Table 1.

Table 28

Interprovincial Migration in Spain, 1960 to 1970

Double Log Ratio Model: $\text{Log}(M_{ij}/P_i)=a_0-\text{Log}D_{ij}+\text{Log}(E_j/E_i)+\text{Log}\text{Stock}_{ij}+u$--O.L.S.

	Provinces with net in-migration		Provinces with net out-migration	
Independent Variables	Coefficients	Coefficients	Coefficients	Coefficients
D_{ij}	-.393*** t=(-7.679) b=(-.148)	-1.179*** t=(-12.668) b=(-.445)	-.586*** t=(-13.808) b=(-.283)	-1.162*** t=(-26.660) b=(-.563)
(E_j/E_i)	.295*** (2.785) (.052)	1.574*** (7.931) (.053)	.108* (1.428) (.026)	.548*** (6.146) (.129)
Stock_{ij}	.787*** (41.083) (.823)	----	.461*** (25.945) (.544)	----
Constant	-9.566	.725	7.014	-.857
	$\bar{R}^2$=.808 S.E.E.=.7264 No. of runs of signs=284 D.W.=1.786 V.N.=1.789 N=596	$\bar{R}^2$=.264 S.E.E.=1.424 No. of runs of signs=207 D.W.=.8946 V.N.=.8961 N=596	$\bar{R}^2$=.542 S.E.E.=.8217 No. of runs of signs=622 D.W.=1.631 V.N.=1.632 N=1,495	$\bar{R}^2$=.355 S.E.E.=.9897 No. of runs of signs=538 D.W.=1.135 V.N.=1.135 N=1,495

Notes: See Table 1.

of attraction. All the variables are significant at conventional levels except earnings at destination in the linear model, which is not significant. In this particular case, earnings at origin seem to dominate the behavior of migratory flows. In the model application which considers provinces of net out-migration as destination areas, all the coefficients but that of earnings at origin in the linear model have the expected sign. Moreover, all the variables except earnings at origin in the linear model are significant. The non-significance of earnings at origin is an expected result, due to the fact that, as stated before, provinces with net out-migration generally have lower average earnings.

The elasticities of the explanatory variables of these two model applications can be seen in Table 29. As this table shows, the elasticities of earnings at destination, earnings at origin, and the ratio (difference) of earnings vary, though differently, with the type of provinces selected as destination areas. The elasticity of distance is slightly superior when the provinces of net out-migration are considered destination areas, while the elasticity of the migrant stock variable is higher when the provinces of net in-migration are considered destination areas. This indicates constancy in the direction of migrant streams. The different behavior of the subsamples is confirmed by the application of the Chow test.[14]

The regression results of the models which consider the principal provinces of attraction and expulsion as destination areas are summarized in the appendix of this chapter, Tables 1 through 6, and

Table 29

Elasticities Table (Provinces with Net In-Migration and Net Out-Migration)[1]

Models	Linear		Ratio		Difference		Allocative Shares		Double Log Ratio[2]	
Provinces with net	in-	out-	in-	out-	in-	out-	in-	out-	in-	out-
Independent Variables										
D_{ij}	-.474	-.538	-.449	-.492	-.449	-.491	-.436	-.279	-.393	-.586
$Stock_{ij}$	.849	.661	.847	.668	.849	.668	.702	.634	.787	.461
E_j	.159	1.039	----	----	----	----	.411	.847	----	----
E_i	-.572	.118	----	----	----	----	----	----	----	----
E_j/E_i	----	----	.435	.334	----	----	----	----	.295	.108
E_j-E_i	----	----	----	----	.077	.027	----	----	----	----

1) elasticities calculated at mean values
2) elasticities are coefficients in the Double Log Ratio Model

Table 7, respectively. The results obtained in the application using the principal provinces of attraction as destination areas are approximately the same as those obtained in the application in which the provinces of net in-migration are considered to be destination areas. The results of the application in which the provinces of expulsion are considered to be destination areas appear to be stochastic. In other words, migrants who go to these provinces appear to have other than economic motives for migrating to these specific destinations.

The Generalized Model, 1960 to 1970

The generalized model for the period 1960 to 1970 was formulated by adding new variables, proxies for certain economic determinants of interprovincial migratory flows, to the basic model previously examined. They are the level of provincial industrialization, the provincial size of the labor market, the provincial level of urban population, the provincial rate of unemployment, all of which are aggregate proxies for the possibility of finding and maintaining employment, and the provincial level of education. All of these variables were defined in the previous chapter. This generalized model will be examined in two stages. In the first stage, we will study the determinants of provincial out-migration by means of a classical push model. In the second stage, we will analyze the determinants of the choice of the province of destination among competing alternatives.[15]

The regression results for the out-migration model are summarized in Table 30. As this table shows, the out-migration model explains

Table 30

Interprovincial Migration in Spain, 1960 to 1970

Out-Migration: $Out_i/P_i = a_0 - a_1 E_i + a_2 UN_i - a_3 N_i - Educ_i + u$

Independent Variables	Coefficients[1]	Elasticities[2]	Coefficients[1]	Elasticities[2]
E_i	-.004948*** t=(-2.623) b=(-.385)	-.896	-.004849** t=(-2.316) b=(-.377)	-.878
N_i	-.000106** (-2.017) (-.285)	-.117	-.000094* (-1.671) (-.253)	-.104
UN_i	6.820880 (.635) (.080)	.081	----	----
$Educ_i$	----	----	-579.250 (-.422) (-.072)	-.093
Constant	263.780		278.453	
	$\bar{R}^2$=.323 S.E.E.=.0619 No. of runs of signs=26 D.W.=2.137 V.N.=2.184 N=47		$\bar{R}^2$=.319 S.E.E.=.0621 No. of runs of signs=26 D.W.=2.200 V.N.=2.249 N=47	

Notes: See Table 1.

approximately 32 percent of the variance of the rates of provincial out-migration. The signs of the variables were the ones expected a priori, indicating that the provincial rates of out-migration (Out_i/P_i) vary inversely with earnings at origin (E_i, significant at at least .05), the size of the labor market (N_i, significant at .05 and .10), the provincial level of education ($Educ_i$, not significant at conventional levels), and directly with the rate of unemployment (UN_i, not significant at conventional levels). As Table 30 shows, the elasticity of earnings at origin is the highest by a substantial margin, and it is followed by the elasticity of the size of the labor market at origin. The results show that these two variables play an important role in the determination of the provincial rate of out-migration. The other two variables, unemployment and education at origin, have low elasticities and do not appear to be determinants of the provincial rate of out-migration.

The estimated equations for the choice of the provincial destination area, the second stage of the generalized model, are shown in Table 31. As this table illustrates, the introduction of the new variables improves, though only slightly, the amount of variance explained in the rates of interprovincial migratory flows in the basic model. In the generalized model, R^2 is approximately .78, while in the basic model it is approximately .75. The signs of all the variables were the ones theoretically expected. This indicates that earnings at destination (E_j), the stock of migrants ($Stock_{ij}$), the size of the labor market (N_j) - divided into the level of provincial

Table 31

Interprovincial Migration in Spain, 1960 to 1970

Allocative Shares Model (Generalized): $M_{ij}/P_i = a_0 - a_1 D_{ij} + a_2 E_j + a_3 N_j + a_4 Stock_{ij} + u$ -- O.L.S.

Independent Variables	Coefficients[1]	Coefficients[1]	Coefficients[1]	Coefficients[1]	Coefficients[1]
D_{ij}	-.021046*** t=(-7.812) b=(-.084)	-.021035*** t=(-7.861) b=(-.083)	-.016226*** t=(-5.710) b=(-.064)	-.013091*** t=(-4.681) b=(-.052)	-.012090*** t=(-4.300) b=(-.048)
E_j	.000282** (2.087) (.024)	.000333*** (2.523) (.029)	.000790*** (5.524) (.068)	.001056*** (7.724) (.092)	.000869*** (5.666) (.075)
N_j	.412299***[a] (14.978) (.214)	.000063***[b] (15.753) (.230)	.176488***[c] (4.684) (.061)	-.252758[d] (-.291) (-.003)	29.533531***[e] (2.461) (.032)
$Stock_{ij}$	.006011*** (53.464) (.713)	.005814*** (50.106) (.693)	.006849*** (68.332) (.813)	.006980*** (71.848) (.828)	.006977*** (72.119) (.827)
Constant	3.834	.967	-12.147	-12.720	-28.091
	$\bar{R}^2$=.776 S.E.E.=.0318 No. of runs of signs=1,075 D.W.=2.193 V.N.=2.195 N=2,091	$\bar{R}^2$=.779 S.E.E.=.0316 No. of runs of signs=1,079 D.W.=2.204 V.N.=2.205 N=2,091	$\bar{R}^2$=.755 S.E.E.=.0333 No. of runs of signs=919 D.W.=2.105 V.N.=2.106 N=2,091	$\bar{R}^2$=.752 S.E.E.=.0334 No. of runs of signs=897 D.W.=2.107 V.N.=2.108 N=2,091	$\bar{R}^2$=.753 S.E.E.=.0033 No. of runs of signs=787 D.W.=2.113 V.N.=2.114 N=2,091

Notes: See Table 1.
a) % share of industrial employment by provinces
b) size of non-agricultural labor market
c) % of urban population
d) unemployment at destination
e) education

industrialization (Column 1), the size of the non-agricultural labor force (Column 2), the level of urban population (Column 3) - and the level of provincial education (Column 5) are factors which attract migrants. On the other hand, distance between provinces (D_{ij}) and the rate of unemployment in the province of destination (Column 4) discourage migrants. In addition, all the variables but the rates of unemployment are significant at conventional levels. The elasticities of the explanatory variables can be found in Table 32. As this table shows, the elasticities of the explanatory variables change when the new variables are introduced. However, the patterns obtained in the basic model are basically maintained in the generalized model. The generalized model confirms the explanations already obtained from the basic model. It illustrates that the size of the labor market, in the different ways that it has been measured, attracts migrants. This is an expected result and indicates that migrants tend to move to larger labor markets because they are more likely to find and maintain employment there. This model also shows that the level of education in the province of destination is a factor that attracts migrants. Obviously, the level of education of a province is directly related to its level of earnings and its development. Thus, the fact that migrants move toward provinces with higher levels of education was expected. What is difficult here is to distinguish earnings and education as determinants of interprovincial migratory flows. Finally, the sign of the unemployment rate variable in this model indicates that people tend to go to provinces with relatively low levels of unemployment, but this variable is not

Table 32

Elasticities Table (Allocative Shares Model, 1960 to 1970, Generalized)

Independent Variables	Elasticities[1]				
D_{ij}	-.516	-.516	-.398	-.321	-.297
E_j	.308	.365	.865	1.156	.952
IND_j	.392	----	----	----	----
N_j	----	.419	----	----	----
URB_j	----	----	.345	----	----
UND_j	----	----	----	.011	----
$EDUC_j$	----	----	----	----	.859
$Stock_{ij}$	.644	.625	.733	.747	.747

1) elasticities calculated at mean values

significant. The lack of significance does not surprise us, however, since the unemployment rate is not a perfect indicator of the possibilities of finding and maintaining employment. It is a well-known fact that labor markets with a significant amount of unemployment can be markets that in the long run offer more opportunities of employment than can markets with low rates of unemployment.[16] In summary, the two stages of the generalized model confirm what was explained in the basic model and, in addition, indicate that the size of the labor market is a factor that we have to take into account in order to explain interprovincial migratory flows.

The Determinants of Interprovincial Migratory Flows: A Selected Year Model

The analysis of the determinants of interprovincial migratory flows by using yearly observations has two main objectives. One is to see if migratory movements react to the fluctuations of economic activities, or business cycles. The other is to compare this model, based on observations of selected years, to the accumulative model previously examined, based on observations of the period 1960 to 1970, and to see if there are any significant differences between short term and long term migratory flows.

The results obtained from the empirical examination of the basic and generalized models for the years 1962, 1964, 1967, 1969, 1971, and 1973 are summarized in Tables 33 through 40. Three specifications were formulated for both models (linear, ratio, and allocative shares),[17]

Table 33

Interprovincial Migration in Spain for Selected Years

Linear Model: $M_{ij}/P_i = a_0 - a_1 D_{ij} + a_2 E_j - a_3 E_i + a_4 N_j - a_5 N_i + u$ --O.L.S.--Total Migrants

Year	Constant	D_{ij}	E_j	E_i	N_j	N_i	
1962	.693	c=-.000292[1] t=(-1.138) b=(-.051)	.000046*** t=(5.779) b=(.258)	-.000044*** t=(-5.334) b=(-.233)	----	----	$\bar{R}^2$=.111, S.E.E.=.0015 D.W.=2.065, V.N.=2.070 No. of runs of signs=179 N=476
	1.397	-.000724*** (-3.072) (-.127)	.000012* (1.574) (.069)	-.000043*** (-4.799) (-.228)	.000002*** (11.520) (.495)	.000003 (.155) (.008)	$\bar{R}^2$=.304. S.E.E.=.0014 D.W.=1.992, V.N.=1.996 No. of runs of signs=205 N=476
	.857	-.000627*** (-2.707) (-.110)	.000021*** (2.797) (.117)	-.000042*** (-5.568) (-.218)	.0000001***[a] (10.900) (.454)		$\bar{R}^2$=.288, S.E.E.=.0014 D.W.=1.983, V.N.=1.987 No. of runs of signs=229 N=476
1964	.402	-.000076*** (-2.644) (-.104)	.000076*** (6.880) (.270)	-.000060*** (-4.666) (-.201)	----	----	$\bar{R}^2$=.119, S.E.E.=.0022 D.W.=2.054, V.N.=2.058 No. of runs of signs=278 N=587
	2.502	-.001194*** (-4.001) (-1.461)	.000016* (1.462) (.058)	-.000055*** (-4.666) (-.201)	.000003*** (11.998) (.476)	.0000001 (.296) (.013)	$\bar{R}^2$=.291, S.E.E.=.0022 D.W.=1.979, V.N.=1.983 No. of runs of signs=278 N=587
	1.638	-.000110*** (-3.764) (-.134)	.000280*** (2.607) (.100)	-.000054*** (-5.606) (-.197)	.0000001***[a] (11.520) (.442)		$\bar{R}^2$=.281, S.E.E.=.0020 D.W.=2.010, V.N.=2.013 No. of runs of signs=282 N=587

Notes: See Table 1.
a) population at destination

Table 34

Interprovincial Migration in Spain for Selected Years

Linear Model: $M_{ij}/P_i = a_0 - a_1 D_{ij} + a_2 E_j - a_3 E_i + a_4 N_j - a_5 N_i + u$ --O.L.S.--Total Migrants

Year	Constant	D_{ij}	E_j	E_i	N_j	N_i	
1967	.531	c=-.000389***[1] t=(-2.040) b=(.008)	.000024*** t=(5.969) b=(.235)	-.000021*** t=(-5.570) b=(-.218)	----	----	$\bar{R}^2$=.108, S.E.E.=.0013 D.W.=2.005, V.N.=2.008 No. of runs of signs=251 N=589
	1.592	-.000652*** (-3.765) (-.134)	.000031 (.805) (.031)	-.000019*** (-5.000) (-.203)	.000002*** (12.935) (.497)	-.0000001 (-.220) (-.009)	$\bar{R}^2$=.306, S.E.E.=.0018 D.W.=1.952, V.N.=1.956 No. of runs of signs=282 N=589
	1.119	-.000627*** (-3.671) (-.129)	.000007** (1.952) (.073)	-.000020*** (-5.925) (-.206)	.0000001***[a] (12.428) (.466)		$\bar{R}^2$=.306, S.E.E.=.0018 D.W.=1.964, V.N.=1.968 No. of runs of signs=249 N=589
1969	.631	-.000551*** (-3.382) (-.132)	.000017*** (6.822) (.267)	-.000016*** (-6.508) (-.254)	----	----	$\bar{R}^2$=.151, S.E.E.=.0010 D.W.=2.010, V.N.=2.013 No. of runs of signs=228 N=562
	13.877	-.000840*** (-5.611) (-.201)	.000004* (1.401) (.054)	-.000013*** (-5.278) (-.216)	.0000001*** (12.546) (.493)	.0000001 (.060) (.002)	$\bar{R}^2$=.337, S.E.E.=.0010 D.W.=1.970, V.N.=1.973 No. of runs of signs=238 N=562
	10.534	-.000812*** (-5.537) (-.194)	.000006*** (2.450) (.092)	-.000013*** (-6.146) (-.214)	.0000001***[a] (12.177) (.465)		$\bar{R}^2$=.329, S.E.E.=.0010 D.W.=1.976, V.N.=1.979 No. of runs of signs=269 N=562

Notes: See Table 1.
a) population at destination

Table 35

Interprovincial Migration in Spain for Selected Years

Linear Model: $M_{ij}/P_i = a_0 - a_1 D_{ij} + a_2 E_j - a_3 E_i + a_4 N_j - a_5 N_i + u$ -- O.L.S. -- Total Migrants

Year	Constant	D_{ij}	E_j	E_i	N_j	N_i	
1971	.798	c=-.000109[1] t=(-.930) b=(-.042)	.000006*** t=(4.063) b=(.184)	-.000009*** t=(-6.349) b=(-.288)	----	----	$\bar{R}^2$=.118, S.E.E.=.0007 D.W.=1.871, V.N.=1.876 No. of runs of signs=160 N=432
	11.058	-.000308*** (-2.791) (-.118)	.000005 (.336) (.014)	-.000007*** (-4.832) (-.222)	.0000006*** (9.655) (.442)	-.0000001 (-1.262) (-.062)	$\bar{R}^2$=.284, S.E.E.=.0006 D.W.=1.805, V.N.=1.809 No. of runs of signs=139 N=432
	1.004	-.000312*** (-2.862) (-.120)	.000020 (1.030) (.045)	-.0000008*** (-6.050) (-.250)	.0000002***[a] (9.611) (.430)		$\bar{R}^2$=.274, S.E.E.=.0006 D.W.=1.800, V.N.=1.804 No. of runs of signs=165 N=432
1973	.682	-.000414*** (-2.802) (-.105)	.000008*** (5.905) (.222)	-.000008*** (-5.662) (-.212)	----	----	$\bar{R}^2$=.104, S.E.E.=.0011 D.W.=1.898, V.N.=1.901 No. of runs of signs=246 N=636
	10.957	-.000670*** (-4.948) (-.017)	.000002 (1.249) (.045)	-.000005*** (-3.749) (-.139)	.000001*** (12.410) (.460)	-.0000001* (-1.454) (-.056)	$\bar{R}^2$=.285, S.E.E.=.0009 D.W.=1.833, V.N.=1.835 No. of runs of signs=252 N=636
	10.064	-.000678*** (-5.041) (-.172)	.000002** (1.853) (.067)	-.000006*** (-4.866) (-.165)	.0000001***[a] (12.335) (.453)		$\bar{R}^2$=.276, S.E.E.=.0009 D.W.=1.838, V.N.=1.841 No. of runs of signs=196 N=636

Notes: See Table 1.
a) population at destination

Table 36

Interprovincial Migration in Spain for Selected Years

Ratio Model: $M_{ij}/P_i=a_0-a_1D_{ij}+a_2E_j/E_i+a_3N_j/N_i+u$--O.L.S.--Total Migrants

Year	Constant	D_{ij}	E_j/E_i	N_j/N_i	
1962	-.692	c=-.000338*[1] t=(-1.322) b=(-.059)	1.357170*** t=(8.122) b=(.365)	----	$\bar{R}^2$=.120, S.E.E.=.0016 D.W.=2.074, V.N.=2.078 No. of runs of signs=201 N=476
	-.269	-.000276 (-1.226) (-.048)	.611781*** (3.816) (.164)	.115053*** (11.740) (.487)	$\bar{R}^2$=.317, S.E.E.=.0014 D.W.=2.023, V.N.=2.019 No. of runs of signs=212 N=476
1964	-2.172	-.000884*** (-2.760) (-.108)	3.276*** (9.281) (.364)	----	$\bar{R}^2$=.130, S.E.E.=.0022 D.W.=2.064, V.N.=2.061 No. of runs of signs=209 N=587
	-.706	-.000715*** (-2.571) (-.087)	1.255990*** (3.703) (.139)	.183787*** (13.873) (.514)	$\bar{R}^2$=.343, S.E.E.=.0019 D.W.=2.013, V.N.=2.016 No. of runs of signs=245 N=587
1967	-.916	-.000419** (-2.213) (-.086)	1.596663*** (9.029) (.352)	----	$\bar{R}^2$=.121, S.E.E.=.0013 D.W.=2.001, V.N.=2.004 No. of runs of signs=235 N=589
	-.241	-.000368** (-2.266) (-.075)	.606147*** (3.637) (.133)	.107050*** (14.460) (.527)	$\bar{R}^2$=.351, S.E.E.=.0011 D.W.=2.051, V.N.=2.054 No. of runs of signs=259 N=589

Notes: See Table 1.

Table 37

Interprovincial Migration in Spain for Selected Years

Ratio Model: $M_{ij}/P_i = a_0 - a_1 D_{ij} + a_2 E_j/E_i + a_3 N_j/N_i + u$ --O.L.S.--Total Migrants

Year	Constant	D_{ij}	E_j/E_i	N_j/N_i	
1969	-.734	c=-.000597***[1] t=(-3.694) b=(-.143)	1.459325*** t=(10.455) b=(.405)	----	$\bar{R}^2$=.168, S.E.E.=.0011 D.W.=2.007, V.N.=2.010 No. of runs of signs=230 N=562
	-.153	-.000569*** (-4.083) (-.135)	.630471*** (4.688) (.174)	.079903*** (13.872) (.514)	$\bar{R}^2$=.381, S.E.E.=.0009 D.W.=2.071, V.N.=2.074 No. of runs of signs=254 N=562
1971	-.547	-.000129 (-1.113) (-.049)	.945549*** (8.331) (.374)	----	$\bar{R}^2$=.136, S.E.E.=.007 D.W.=1.879, V.N.=1.884 No. of runs of signs=182 N=432
	-.229	-.000172** (-1.653) (-.066)	.495664*** (4.511) (.196)	.039977*** (10.539) (.457)	$\bar{R}^2$=.312, S.E.E.=.0006 D.W.=1.941, V.N.=1.945 No. of runs of signs=187 N=432
1973	-.676	-.000423*** (-2.878) (-.107)	1.136426*** (8.573) (.321)	----	$\bar{R}^2$=.111, S.E.E.=.0011 D.W.=1.895, V.N.=1.898 No. of runs of signs=248 N=636
	-.116	-.000450*** (-3.476) (-.114)	.584850*** (3.865) (.138)	.066128*** (13.607) (.484)	$\bar{R}^2$=.311, S.E.E.=.0009 D.W.=1.952, V.N.=1.955 No. of runs of signs=248 N=636

Notes: See Table 1.

Table 38

Interprovincial Migration in Spain for Selected Years

Allocative Shares Model: $M_{ij}/Out_i = a_0 - a_1 D_{ij} + a_2 E_j + a_3 N_j + u$ --O.L.S.--Total Migrants

Year	Constant	D_{ij}	E_j	N_j	
1962	-74.311	c=-.023078[1] t=(-1.007) b=(-.045)	.004614*** t=(6.436) b=(.292)	----	$\bar{R}^2$=.077, S.E.E.=.1436 D.W.=2.066, V.N.=2.070 No. of runs of signs=199 N=476
	-5.237	-.062652*** (-3.070) (-.124)	.001497** (2.194) (.095)	.000186*** (11.857) (.513)	$\bar{R}^2$=.287, S.E.E.=.1262 D.W.=2.005, V.N.=2.009 No. of runs of signs=211 N=476
	-50.046	-.055368*** (-2.698) (-.109)	.002288*** (3.424) (.145)	.000074***[a] (11.352) (.477)	$\bar{R}^2$=.273, S.E.E.=.1274 D.W.=2.001, V.N.=2.005 No. of runs of signs=221 N=476
1964	-.173	-.039716*** (-2.493) (-.098)	.004995*** (9.094) (.357)	----	$\bar{R}^2$=.122, S.E.E.=.1121 D.W.=2.029, V.N.=2.032 No. of runs of signs=248 N=587
	258.520	-.060000*** (-4.485) (-.148)	.000128*** (2.480) (.091)	.000017*** (15.906) (.585)	$\bar{R}^2$=.387, S.E.E.=.0937 D.W.=2.053, V.N.=2.057 No. of runs of signs=268 N=587
	80.453	-.055057*** (-4.041) (-.135)	.002102*** (4.144) (.150)	.000066***[a] (14.832) (.535)	$\bar{R}^2$=.362, S.E.E.=.0960 D.W.=2.052, V.N.=2.055 No. of runs of signs=278 N=587

Notes: See Table 1.

Table 39

Interprovincial Migration in Spain for Selected Years

Allocative Shares Model: $M_{ij}/Out_i = a_0 - a_1 D_{ij} + a_2 E_j + a_3 N_j + u$ --O.L.S.--Total Migrants

Year	Constant	D_{ij}	E_j	N_j	
1967	-1.00	c=-.027841**[1] t=(-1.914) b=(-.076)	.002295*** t=(7.628) b=(.303)	----	$\bar{R}^2$=.088, S.E.E.=.1020 D.W.=2.115, V.N.=2.119 No. of runs of signs=239 N=589
	47.548	-.052423*** (-4.318) (-.143)	.000448* (1.638) (.059)	.000146*** (16.419) (.596)	$\bar{R}^2$=.375, S.E.E.=.0844 D.W.=.2101, V.N.=.2104 No. of runs of signs=275 N=589
	-32.660	-.049430*** (-4.010) (-.135)	.000814*** (3.007) (.107)	.000055***[a] (15.559) (.557)	$\bar{R}^2$=.354, S.E.E.=.0844 D.W.=2.123, V.N.=2.127 No. of runs of signs=278 N=589
1969	-83.584	-.041186*** (-2.927) (-.117)	.001772*** (8.127) (.325)	----	$\bar{R}^2$=.113, S.E.E.=.0983 D.W.=2.068, V.N.=2.071 No. of runs of signs=246 N=562
	18.329	-.071048*** (-6.014) (-.202)	.000342*** (1.696) (.062)	.000129*** (15.974) (.599)	$\bar{R}^2$=.387, S.E.E.=.0815 D.W.=2.116, V.N.=2.120 No. of runs of signs=268 N=562
	15.300	-.068335*** (-5.727) (-.194)	.000593*** (2.990) (.109)	.000051***[a] (15.377) (.565)	$\bar{R}^2$=.387, S.E.E.=.0815 D.W.=2.123, V.N.=2.127 No. of runs of signs=264 N=562

Notes: See Table 1.
a) population at destination

Table 40

Interprovincial Migration in Spain for Selected Years

Allocative Shares Model: $M_{ij}/Out_i = a_0 - a_1 D_{ij} + a_2 E_j + a_3 N_j + u$ --O.L.S.--Total Migrants

Year	Constant	D_{ij}	E_j	N_j	
1971	-72.099	c=-.012639[1] t=(-.735) b=(-.034)	.001305*** t=(5.746) b=(.268)	----	$\bar{R}^2$=.067, S.E.E.=.1059 D.W.=1.984, V.N.=1.989 No. of runs of signs=185 N=432
	20.311	-.054008*** (-3.653) (-.146)	.000275* (1.338) (.057)	.000115*** (13.410) (.579)	$\bar{R}^2$=.342, S.E.E.=.0890 D.W.=2.006, V.N.=2.010 No. of runs of signs=199 N=432
	-5.985	-.049944*** (-3.352) (-.135)	.000414** (2.019) (.085)	.000045***[a] (12.890) (.553)	$\bar{R}^2$=.327, S.E.E.=.0900 D.W.=2.007, V.N.=2.012 No. of runs of signs=197 N=432
1973	-60.917	-.040409*** (-3.259) (-.123)	.000826*** (7.113) (.270)	----	$\bar{R}^2$=.086, S.E.E.=.0892 D.W.=2.033, V.N.=2.036 No. of runs of signs=262 N=636
	18.254	-.068774*** (-6.489) (-.218)	.000198** (1.874) (.064)	.000104*** (16.079) (.562)	$\bar{R}^2$=.349, S.E.E.=.0752 D.W.=2.045, V.N.=2.049 No. of runs of signs=288 N=636
	14.863	-.066419*** (-6.221) (-.203)	.000250*** (2.376) (.082)	.000041***[a] (15.579) (.544)	$\bar{R}^2$=.336, S.E.E.=.0759 D.W.=2.053, V.N.=2.056 No. of runs of signs=288 N=636

Notes: See Table 1.
a) population at destination

and different equations have been estimated. The results obtained from the basic model, which introduces earnings and distance as explanatory variables, are reported in the first row of each year and specification. The results of the generalized model, which includes earnings, distance, and the size of the labor market as explanatory variables, are reported in the second row of each year and specification. Finally, we introduced earnings, distance, and population size in the destination province as explanatory variables in the linear and allocative shares specifications of the generalized model. The results obtained are presented in the third row of each year and specification. As Tables 33 through 40 show, the amount of variance explained in the basic model for each of the six selected years is approximately 12 percent, while in the generalized model it is approximately 30 percent. Moreover, each of the specifications give the same closeness of fit in their respective models. The signs of the coefficients of the explanatory variables obtained in the empirical results do not reject the hypotheses deduced from our theoretical model. Only the variable measuring the size of the labor market at origin, introduced in the linear model, changes signs in different years. It is negative for 1967, 1971, and 1973, and positive for 1962, 1964, and 1969. We can make the following generalizations about short run migratory movements, based on the signs of the coefficients of the explanatory variables. First, distance appears to be a deterrent to interprovincial migratory flows. Second, migratory movements tend to go from provinces with relatively low

earnings, to provinces with relatively high earnings. Third, the size of the labor market and the population size at destination are factors that attract migrant streams. An overall judgment of the significance of the explanatory variables indicates that distance, earnings, the size of the labor market at destination (or the ratio of the sizes of the labor markets at destination and origin), and provincial population size at destination are significant variables at conventional levels. On the other hand, the size of the labor market at origin, when introduced separately in the linear specification, never appears to be significant, indicating that what is relevant is the ratio of sizes.

An overall judgment of the elasticities for the six selected years and for the three specifications (See Tables 41 through 43) reveals that earnings at origin is an important push factor of migration at the same time that the ratio of earnings and earnings at destination are important factors of attraction. It also reveals that distance is a relatively strong deterrent to interprovincial migratory flows. Finally, the flow of migrants definitely tends to go towards large labor markets or populous provinces. In addition, the elasticities reveal that the size of the labor market at origin is not a significant element affecting interprovincial flows. The importance of earnings at origin as a push factor of migration for the six selected years is confirmed by the application of the first stage of the allocative shares model, the out-migration model (See Tables 44 and 45). This first stage also reveals the slight impor-

Table 41

Elasticities[1] Table (Linear Model, Total Migrants, for Selected Years)

Variables	Years					
	1962	1964	1967	1969	1971	1973
D_{ij}	-.343	-.482	-.404	-.557	-.291	-.511
E_j	.524	.778	.350	.527	.143	.494
E_i	-1.577	-2.420	-1.994	-1.835	-1.876	-1.486
N_j	.801	.850	.817	.757	.651	.699
N_i	.010	.019	-.013	.003	-.073	-.074
P_j	.937	.995	.929	.874	.751	.825

1) elasticities calculated at mean values

Table 42

Elasticities[1] Table (Ratio Model, Total Migrants, for Selected Years)

Variables	Years					
	1962	1964	1967	1969	1971	1973
D_{ij}	-.131	-.288	-.228	-.378	-.163	-.343
E_j/E_i	.877	1.269	.968	1.084	1.222	1.063
N_j/N_i	.560	.654	.599	.525	.447	.478

1) elasticities calculated at mean values

Table 43

Elasticities[1] Table (Allocative Shares Model, Total Migrants, for Selected Years)

Variables	1962	1964	1967	1969	1971	1973
D_{ij}	-.292	-.371	-.331	-.433	-.266	-.486
E_j	.628	.933	.510	.466	.399	.539
N_j	.722	.795	.753	.711	.632	.656
P_j	.856	.916	.885	.821	.715	.762

1) elasticities calculated at mean values

Table 44

Interprovincial Migration in Spain for Selected Years

Out-Migration Model: $Out_i/P_i = a_0 - a_1 E_i - a_2 N_i - a_3 GN_i + u$ --O.L.S.--Total Migrants

Year	Constant	E_i	N_i	GN_i	
1962	25.287	c=-.000436***[1] t=(-4.686) b=(-.588)	-.000004 t=(-1.293) b=(-.163)	-.088888 t=(-1.076) b=(-.121)	$\bar{R}^2$=.437, S.E.E.=.0047 D.W.=2.297, V.N.=2.347 No. of runs of signs=24 N=47
1964	4.593	-.000569*** (-3.286) (-.443)	-.000009* (-1.557) (-.205)	-.460792* (-1.669) (-.201)	$\bar{R}^2$=.371, S.E.E.=.0086 D.W.=2.203, V.N.=2.251 No. of runs of signs=24 N=47
1967	25.668	-.000180*** (-3.353) (-.417)	-.000005* (-1.615) (-.198)	-33.560902*** (-2.694) (-.311)	$\bar{R}^2$=.438, S.E.E.=.0047 D.W.=1.945, V.N.=1.988 No. of runs of signs=24 N=47
1969	18.326	-.000096*** (-3.353) (-.417)	-.000003* (-1.615) (-.198)	-30.533485*** (-2.694) (-.311)	$\bar{R}^2$=.438, S.E.E.=.0047 D.W.=1.945, V.N.=1.988 No. of runs of signs=24 N=47
1971	12.819	-.000062*** (-3.377) (-.452)	-.000002** (-1.799) (-.239)	-.0620810 (-1.039) (-.129)	$\bar{R}^2$=.306, S.E.E.=.0026 D.W.=1.854, V.N.=1.894 No. of runs of signs=24 N=47
1973	22.241	-.000072*** (-3.011) (-.374)	-.000004** (-1.748) (-.223)	-33.945490*** (-3.140) (-.374)	$\bar{R}^2$=.388, S.E.E.=.0041 D.W.=2.249, V.N.=2.298 No. of runs of signs=24 N=47

Notes: See Table 1.

Table 45

Elasticities[1] Table (Out-Migration for Selected Years)

Variables	Years					
	1962	1964	1967	1969	1971	1973
E_i	-1.417	-1.828	-1.318	-.935	-1.414	-1.266
N_i	-.072	-.099	-.086	-.064	-.098	-.083
GN_i	-.100	-.143	-.209	-.047	-.052	-.082

1) elasticities calculated at mean values

tance of the size of the labor market at origin (N_i). In addition, it shows that the growth of employment at origin (GN_i) is significant for some years as an explanatory factor of migration.

The empirical results obtained for the six selected years confirm those obtained for the period 1960 to 1970, which were that distance is an important deterrent to migration, the variable distance is measuring something more than the cost of transportation, and migratory flows go from provinces with relatively low earnings to those with relatively high earnings. There is a difference between the performance of earnings at origin in the model for the period 1960 to 1970 and in the model for the six selected years. In the latter, earnings at origin appear to be a strong determinant of interprovincial migratory flows, while in the former it is not as powerful. Finally, the results of the model based on the six selected years and that based on the period 1960 to 1970 also confirm that migratory movements tend to go to large labor markets.

In the selective year model, the years 1962 and 1971 generally report lower elasticity values. Those two years were ones of relative slack in the labor market. The other years had higher elasticity values, and there were no significant differences in value among them. When we compare the elasticity values obtained for the selected years with those obtained for the period 1960 to 1970, the values seem to indicate that although migratory movements are somewhat sensitive to the cyclical fluctuations of the economy, they generally appear to be dominated by long-run phenomena.

Footnotes

[1]From now on, in all the tables S.E.E. refers to the standard error of estimate, $\bar{R}^2$ refers to the coefficient of multiple determination adjusted for the degrees of freedom, D.W. refers to the Durbin-Watson statistic, V.N. refers to the von Neumann ratio, and N refers to the number of observations.

[2]Gene Laber, "Lagged Response in the Decision to Migrate: A Comment," Journal of Regional Science, Vol. 12, No. 2, 1972, p. 309.

[3]P. Nelson, "Migration, Real Income and Information," Journal of Regional Science, Spring 1959, pp. 43-74.

[4]Michael J. Greenwood, "An Analysis of the Determinants of Geographic Labor Mobility in the United States," Review of Economics and Statistics, Vol. 51, No. 2, May 1969, pp. 189-94.

[5]Michael J. Greenwood, "Lagged Response in the Decision to Migrate," Journal of Regional Science, Vol. 10, No. 3, 1970, pp. 375-84.

[6]Michael J. Greenwood, "An Analysis of the Determinants of Geographic Labor Mobility in the United States," op. cit., p. 190.

[7]Michael J. Greenwood, "Lagged Response in the Decision to Migrate: A Reply," Journal of Regional Science, Vol. 12, No. 2, 1972, p. 318. Recently, James A. Dunlevy and Henry A. Gemery, "The Role of Migrant Stock and Lagged Migration in the Settlement Patterns of Nineteenth Century Immigrants," Review of Economics and Statistics, Vol. 59, May 1977, pp. 137-44, have analyzed the role of the migrant stock variable in a model in which they introduce both lagged migration and migrant stock. They reached the following conclusions: "Migrant stock and lagged migration both appear significantly positive in the same regression as suggested by our model. This is important; it suggests that two separate mechanisms are at work and that migrant stock is not merely a proxy for a partial adjustment," p. 143.

[8]See J. Johnston, Econometric Methods, (New York: McGraw-Hill, 1960), p. 163. D.E. Farrar and R.R. Glauber, "Multicollinearity in Regression Analysis: The Problem Re-visited," Review of Economics and Statistics, Vol. 49, 1967, pp. 92-107.

[9]Arthur Goldberger, Econometric Theory (New York: John Wiley and Sons, Inc., 1964), pp. 197-98.

[10]Gian S. Sahota, "An Economic Analysis of Internal Migration i Brazil," Journal of Political Economy, Vol. 70, 1968, p. 237.

[11]Larry A. Sjaastad, "Income and Migration in the United States," (Unpublished Ph.D. dissertation, Univ. of Chicago, 1961), p. 63.

[12]Sjaastad, op. cit., p. 25, points out the following: "Marginal money costs of migration surely are not as high as this relation implies, which suggests the hypothesis that the risk and uncertainty associated with long distance migration is an important factor."

[13]Our calculated F in all specifications was smaller than the tabular F at 99 level of significance. As a result, we accept the null hypothesis that the two structures (male, female) are the same at 99 level of significance. Gregory C. Chow, "Tests of Equality between Sets of Coefficients in Two Linear Regressions," Econometrica, Vol. 28, No. 3, July 1960, pp. 591-605. Also see Franklin M. Fisher, "Tests of Equality between Sets of Coefficients in Two Linear Regressions: An Expository Note," Econometrica, Vol. 38, No. 2, March 1970, pp. 361-66.

[14]Our calculated F in all specifications was greater than the tabular F at 99 level of significance. As a result, we reject the null hypothesis. Gregory C. Chow, op. cit.

[15]Here we used the allocative shares model for two reasons. First, it is more policy oriented, and second, the two stages of this model allows us to study the economic determinants at origin and destination separately.

[16]Michael P. Todaro, "Urban Job Expansion, Induced Migration, and Rising Unemployment," Journal of Development Economics, Vol. 3 1976, pp. 211-25.

[17]We used these three specifications due to the information that we received from the basic model, which implied that the double log model gives less closeness of fit and that there was no difference between the difference and ratio models.

APPENDIX

Table 1

Interprovincial Migration in Spain, 1960 to 1970

Linear Model: $M_{ij}/P_i = a_0 - a_1 D_{ij} + a_2 E_j - a_3 E_i + a_4 Stock_{ij} + u$ --O.L.S.--Total Migrants

	Principal Provinces of Attraction[c]			
Independent Variables	Coefficients[1]	Elasticities[2]	Coefficients[1]	Elasticities[2]
D_{ij}	-.015033*** t=(-3.167) b=(-.132)	-.381	-.035468*** t=(-4.551) b=(-.311)	-.898
E_j	.000150 (.508) (.021)	.233	.000528 (1.058) (.072)	.817
E_i	-.000410** (-1.883) (-.078)	-.474	-.001393*** (-3.904) (-.265)	-1.609
$Stock_{ij}$	.001100*** (18.297) (.780)	.845	----	----
Constant	16.224		56.158	
	$\bar{R}^2$=.704 S.E.E.=.0163 No. of runs of signs=84 D.W.=2.062 V.N.=2.073 N=184		$\bar{R}^2$=.157 S.E.E.=.0276 No. of runs of signs=60 D.W.=1.688 V.N.=1.697 N=184	

Notes: See Table 1.

c) Barcelona, Madrid, Valencia, Vizcaya

APPENDIX

Table 2

Interprovincial Migration in Spain, 1960 to 1970

Ratio Model: $M_{ij}/P_i = a_0 - a_1 D_{ij} + a_2 E_j/E_i + a_3 Stock_{ij} + u$--O.L.S.--Total Migrants

	Principal Provinces of Attraction[c]			
Independent Variables	Coefficients[1]	Elasticities[2]	Coefficients[1]	Elasticities[2]
D_{ij}	-.014685*** t=(-3.124) b=(-.129)	-.372	-.034302*** t=(-4.438) b=(-.300)	-.869
E_j/E_i	7.000656** (1.931) (.080)	.471	24.2029*** (4.094) (.277)	1.627
$Stock_{ij}$	.001100*** (18.331) (.781)	.845	----	----
Constant	1.118		5.040	
	$\bar{R}^2$=.706 S.E.E.=.0163 No. of runs of signs=84 D.W.=2.088 V.N.=2.099 N=184		$\bar{R}^2$=.162 S.E.E.=.0275 No. of runs of signs=72 D.W.=1.694 V.N.=1.703 N=184	

Notes: See Table 1.
c) Barcelona, Madrid, Valencia, Vizcaya

APPENDIX

Table 3

Interprovincial Migration in Spain, 1960 to 1970

Difference Model: $M_{ij}/P_i=a_0-a_1D_{ij}+a_2(E_j-E_i)+a_3Stock_{ij}+u$--O.L.S.--Total Migrants

	Principal Provinces of Attraction[c]			
Independent Variables	Coefficients[1]	Elasticities[2]	Coefficients[1]	Elasticities[2]
D_{ij}	-.014630*** t=(-3.109) b=(-.128)	-.370	-.034352*** t=(-4.429) b=(-.301)	-.870
(E_j-E_i)	.000319** (1.821) (.075)	.124	.001093*** (3.809) (.259)	.428
$Stock_{ij}$	.001104*** (18.461) (.784)	.848	----	----
Constant	8.317		30.095	
	$\bar{R}^2$=.705 S.E.E.=.0163 No. of runs of signs=84 D.W.=2.083 V.N.=2.094 N=184		$\bar{R}^2$=.152 S.E.E.=.0276 No. of runs of signs=68 D.W.=1.702 V.N.=1.712 N=184	

Notes: See Table 1.
c) Barcelona, Madrid, Valencia, Vizcaya

APPENDIX

Table 4

Interprovincial Migration in Spain, 1960 to 1970

Allocative Shares Model: $M_{ij}/Out_i = a_0 - a_1 D_{ij} + a_2 E_j + a_3 Stock_{ij} + u$--O.L.S.--Total Migrants

	Principal Provinces of Attraction[c]			
Independent Variables	Coefficients[1]	Elasticities[2]	Coefficients[1]	Elasticities[2]
D_{ij}	-.083931*** t=(-2.940) b=(-.130)	-.304	-.193265*** t=(-4.236) b=(-.299)	-.699
E_j	.001169 (.652) (.028)	.258	.003435** (1.173) (.083)	.758
$Stock_{ij}$	.006155*** (17.477) (.774)	.675	----	----
Constant	54.153		137.483	
	$\bar{R}^2$=.661 S.E.E.=.0988 No. of runs of signs=74 D.W.=2.108 V.N.=2.119 N=184		$\bar{R}^2$=.091 S.E.E.=.1618 No. of runs of signs=51 D.W.=1.488 V.N.=1.496 N=184	

Notes: See Table 1.
c) Barcelona, Madrid, Valencia, Vizcaya

APPENDIX

Table 5

Interprovincial Migration in Spain, 1960 to 1970

Double Log Ratio Model: $\text{Log}(M_{ij}/P_i)=a_0-\text{Log}D_{ij}+\text{Log}(E_m/E_i)+\text{LogStock}_{ij}+u$--O.L.S.--Total Migrants

Independent Variables	Principal Provinces of Attraction[c] Coefficients	Coefficients
D_{ij}	-.225*** t=(-3.063) b=(-.096)	-.927*** t=(-6.083) b=(-.395)
(E_j-E_i)	.466*** (2.689) (.081)	1.559*** (4.174) (.271)
Stock_{ij}	.845*** (26.666) (.859)	----
Constant	-10.995	.385
	$\bar{R}^2$=.843 S.E.E.=.5876 No. of runs of signs=94 D.W.=1.735 V.N.=1.745 N=184	$\bar{R}^2$=.227 S.E.E.=1.304 No. of runs of signs=62 D.W.=1.013 V.N.=1.019 N=184

Notes: See Table 1.
c) Barcelona, Madrid, Valencia, Vizcaya

APPENDIX

Table 6

Elasticities[1] Table (Principal Provinces of Attraction[c])

Models	Linear	Ratio	Difference	Allocative Shares	Double Log Ratio[2]
Independent Variables					
D_{ij}	-.381	-.372	-.370	-.303	-.225
$Stock_{ij}$	.845	.845	.848	.675	.844
E_j	.232	----	----	.258	----
E_i	-.474	----	----	----	----
E_j/E_i	----	.471	----	----	.465
E_j-E_i	----	----	.124	----	----

1) elasticities calculated at mean values
2) elasticities are coefficients in the Double Log Ratio Model
c) Barcelona, Madrid, Valencia, Vizcaya

APPENDIX

Table 7

Principal Centers of Expulsion[1]
(O.L.S.--Total Migrants)

Model	Linear	Ratio	Difference	Allocative Shares	Double Log Ratio
Independent Variables	Coefficients[2]	Coefficients[2]	Coefficients[2]	Coefficients[2]	Coefficients[2]
D_{ij}	.000099 t=(.399)	.000034 t=(.144)	.000042 t=(.178)	.005539 t=(2.043)	-.609000 t=(-5.948)
$Stock_{ij}$	.000537 (31.160)	.000534 (31.970)	.000534 (31.970)	.004112 (20.640)	.394394 (-7.900)
E_j	-.000011 (-.647)	----	----	-.000081 (-.396)	----
E_i	-.000003	----	----	----	----
E_j/E_i	----	-.048530 (-.215)	----	----	-.107218 (-.718)
E_j-E_i	----	----	-.000001 (-.038)	----	----
Constant	.415	.192	.144	.834	.394
	$\bar{R}^2$=.777 S.E.E.=.0009 No. of runs of signs=168 N=363	$\bar{R}^2$=.777 S.E.E.=.0009 No. of runs of signs=179 N=363	$\bar{R}^2$=.779 S.E.E.=.0009 No. of runs of signs=182 N=363	$\bar{R}^2$=.587 S.E.E.=.0108 No. of runs of signs=172 N=363	$\bar{R}^2$=.556 S.E.E.=.7142 No. of runs of signs=154 N=363

1) Badajoz, Caceres, C. Real, Cordoba, Granada, Jaen, Murcia, Sevilla
2) coefficients multiplied by one thousand

CHAPTER V

SUMMARY, CONCLUSIONS, AND POLICY IMPLICATIONS

This study has examined the economic determinants of migratory movements in Spain during the period 1960 to 1973. Methodologically, it was divided into two parts. The first was a descriptive analysis of the intraprovincial as well as interprovincial migratory movements that took place in Spain during the period 1960 to 1973. Special attention was devoted to the characteristics of migrants (age, sex, marital status, and occupation), the characteristics of the provinces of origin and destination (their size and economic structure), the size of the municipalities of origin and destination, and the underlying economic reasons for mobility (structure of the labor market, earnings, and standard of living). Certain indications of the effect of migratory movements on the spatial distribution of population and economic resources in Spain were also studied.

The second part of our study, which included a critical appraisal of the existing literature on migration, was an empirical analysis of the theoretical model, formulated specifically for this study and based on the theory of human capital. The economic determinants of interprovincial migratory flows were empirically examined by means of a multiple regression analysis for the period 1960 to 1970 (based on data from the Censo de la Población de España, 1970) and for six selected years (based on data from the Anuario Estadístico de España). Using data from the Censo, we

empirically analyzed the determinants of interprovincial migratory flows for the period 1960 to 1970. We also analyzed the determinants of these flows for this period according to sex and age groups (10 to 24 years, 25 to 49 years, and above 50 years). In addition, we divided the total sample of observations into four subsamples, each of which used different criteria to define the provinces of destination. The provinces considered as destination areas in these subsamples were those with net in-migration, those with net out-migration, and the principal provinces of attraction and expulsion. The empirical analysis based on data from the Anuario refers to total interprovincial migratory flows for the years 1962, 1964, 1967, 1969, 1971, and 1973. The model was also specified in the following forms: linear, ratio, difference, allocative shares, and double log ratio.

Findings and Conclusions

Our empirical results clearly support the human investment view of migration. Economic costs and benefits appear to dominate the behavior of interprovincial migratory flows in Spain. The following hypotheses have been confirmed by our empirical examination. First, the presence of friends and relatives in the province of destination is a major determining factor in the choice of a destination area and the willingness to migrate there. Second, interprovincial migratory flows decrease as distance between provinces increases. Third, interprovincial migratory flows

go from provinces with relatively low per capita earnings towards provinces with relatively high per capita earnings. Fourth, interprovincial migratory flows go towards large labor markets. Finally, interprovincial migratory flows go from provinces with low levels of education to those with high levels.

Certain generalizations about migrant behavior can be concluded from our findings. First, migrants try to maximize their expected lifetime net benefits. In so doing, information, transition and travel costs, earnings, and the possibilities of finding and maintaining employment are all factors that influence their behavior. Second, migrants try to minimize uncertainty, and, thus, they tend to move to those provinces to which friends and relatives have already gone and to those which are closest to their province of origin. The lack of perfect information is an especially important element which must be taken into consideration in order to understand migratory movements. This is confirmed in our empirical analysis by the crucial role played by the migrant stock variable and by the variable, distance, both of which are proxies for uncertainty, among other elements. The migrant stock variable also indicates the importance of transition costs in the behavior of migrants, while distance indicates the relative importance of travel costs in the move. It is difficult to determine which of the elements that these variables measure (uncertainty, transition and travel costs, psychic costs) dominates, even though we found some indication that the lack of information, or uncer-

tainty, is the dominant factor. Third, although the presence of friends and relatives greatly facilitates the transition to a new province by providing information and possibly economic support during the first difficult moments of the move, they are not perfect substitutes for economic incentives in the decision to migrate. Migrants do respond to wage and employment opportunities. This is indicated by the attractive effect of earnings. In addition, individuals tend to move to large labor markets, again an indication of the importance of economic incentives and uncertainty in the behavior of migrants. Large labor markets offer more possibilities of both employment and higher earnings, so that individuals with uncertainty are likely to assume that employment will be more readily available there than in the small markets. Moreover, the fact that migrants move from provinces with low average levels of education to those with high average levels also indicates the importance of economic motives in migration, since the provincial level of education is obviously a proxy for the economic development and well-being of a province.

When analyzing the empirical results obtained from the different categories of migrants, we found that the behavior of male and female migrants is the same. They are each dominated by the same economic incentives. The only difference is in the role of distance, which is more of a barrier to female migrants than to male migrants, suggesting that the former are more risk adverse than the latter. In the analysis of migrant behavior according to

age categories, we found that economic motives are more dominant in the behavior of prime-age workers (25 to 49 years of age) than in the behavior of migrants of other ages. Migrants over 50 years of age are less responsive to a given economic incentive, and those between 10 and 24 years of age are more influenced by push factors. The empirical results obtained from the four subsamples that use different criteria to define the potential provinces of destination show that the underlying motives of migrants who go to relatively developed provinces are economic, both push and pull factors are relevant, while the motives of migrants who go to relatively underdeveloped provinces are not predominantly economic, though economic incentives are also present.

None of the model specifications (linear, ratio, difference, allocative shares and double log ratio) were significantly more dominant in performance over the others. Each one made its own contribution to the understanding of the total phenomenon of interprovincial migratory flows. Finally, by comparing the empirical results obtained for the period 1960 to 1970 with those obtained for the six selected years, we found that both short-run movements and long-run movements are explained by economic factors, and that, although migratory movements react to business cycles, they are more of a long-run phenomenon. In addition, there were no significant differences in the explanatory factors of interprovincial migratory flows among the six selected years.

Policy Implications

The question of public intervention in the regulation of internal migratory movements arises from the economic and/or socio-political consequences that these movements cause. When evaluating the rationality of regulating migratory flows, the two most important criteria appear to be efficiency and equity. Because efficiency implies the maximization of national output, the economic role of migratory movements is determined by their contribution to the growth of the national product. Equity, on the other hand, has connotations of social welfare, so that the role of migratory movements is evaluated by means of their influence on the distribution of income by region or social group. In other words, equity considers not only the magnitude of the national product, but also the way in which it is distributed. It is important for the policy makers not only to take both these criteria into consideration, but to understand that they may generally conflict with each other. Thus, more equity, or less inequality in the distribution of income, may mean less efficiency, or less national product, and vice versa.

As our empirical results indicate, migratory movements in Spain have been primarily determined by earning differentials among labor markets, reflecting primarily productivity differentials. Thus, it can be stated that these movements have been efficient in a gross social and private sense, since they have led to the optimal allocation of labor resources, and, in turn, to a

gross increase in the level of gross domestic product. Even though the overall judgment of migratory movements in terms of efficiency may be favorable (the high growth of the G.D.P. in Spain confirms this), it is possible that in some areas, particularly in the overcrowded leading cities of attraction, such as Barcelona, Madrid, Bilbao, etc., the amount of migration exceeds the social optimum. If this is the case, the social marginal costs of migration exceed the private marginal costs. As a result, public intervention is justifiable in efficiency terms for the social interest. Indirect evidence seems to indicate that in these cities, the diseconomies of scale, a result of the overgrowth of the cities, primarily as a consequence of migration, are well beyond the economies of scale. Some indicators, such as the concentration of poverty, the proliferation of slums, traffic congestion, environmental problems, the lack of optimal provision of public services (schools, hospitals, sanitation, etc.), and social and class polarization, seem to confirm this idea. As a result, policy intervention directed towards the restriction of in-migration to these cities and/or the encouragement or out-migration from them will be socially efficient. The appropriate policy will be to redirect migratory movements to areas in which the net social and private benefits of migration are positive. Two objectives can be reached with such a policy. One will be the decongestion of overcrowded cities, which, in turn, will decrease social and economic pathologies. The second will be the more efficient allo-

cation of resources.

Two other closely-related problems, not necessarily economic and not directly caused by migratory movements, though related to them, are the wide interprovincial (regional) differences in income and the resulting increase in the imbalance of population distribution. Both are a logical consequence of national economic growth and demand some consideration on the part of policy makers. Given that the dominant goal of policy makers in Spain has consistently been the maximization of national growth, labor and capital have tended towards the more developed provinces, due to the location advantages that these provinces offer, such as agglomeration economies, market potential, a better economic infrastructure, etc. This has produced a spatially unbalanced economic growth and population distribution. Evidently, from the point of view of maximizing the national output, this unbalanced growth was economically efficient. However, given the strong identification of individuals with their provinces (regions) of origin, this unbalanced spatial growth has created social and political problems. Not only is there internal tension between migrants and natives living in the same province (cultural and ethnic clash), but there are also strong sentiments of neglect on the part of poor provinces, which feel abandoned by the government. The logical consequence of these problems is the possible reduction of integration and stability in the country as a whole. A solution seems to be necessary for the restoration and maintainance of internal stability and, perhaps, for long-run efficiency. Thus, the amelioration of provincial income ine-

quality and an unbalanced population distribution may make public intervention justifiable in equity terms and socio-political considerations. We should mention, however, that from a private standpoint, the costs were apparently more than compensated by benefits, otherwise people would not have moved.

Due to a possible conflict between efficiency and equity, policies have to be established selectively, so that the maximum efficiency possible will be achieved. The measures to be taken will also depend on the conditions of the areas involved in a possible intervention, since their economic conditions will not be homogeneous. Because it would be too costly socially to try to eliminate all adverse economic change in those areas which do not show economic potential, it would be advisable to promote the mobility of people from these areas towards non-congested areas which offer economic opportunities. For those individuals who do not find it appropriate to leave these areas, the policy would be to redistribute income through welfare programs. On the other hand, in those areas which offer potential economic growth, public policy has to be directed to the reduction of the rate of out-migration, particularly of the more qualified workers, and to the establishment of incentives to attract migrants from deteriorating and over-congested provinces. By implementing these policies, it will be possible to decrease the inequality of income and to restore relative balance to population distribution, as well as to maintain an acceptable rate of national economic

growth. In short, public policy has to serve a dual purpose: to relieve population pressure in some cities, and to encourage the movement and resettlement of population to others which have economic potential, but which have been relatively neglected by the government.

In the light of our empirical results, some recommendations can be made in order to encourage different patterns and rates of mobility. The policies to be established have to take into consideration the importance of economic incentives, as well as the relevance of costs in the decision to migrate and the choice of a destination area. From the point of view of costs, our results indicate that uncertainty, transition costs, and travel costs are important in order to understand the behavior of migrants. This is confirmed by the role that the migrant stock variable and the distance variable play in our model. The migrant stock variable, which has the highest elasticity value (.94) among the explanatory variables, indicates that uncertainty and transition costs are important determinants in migratory behavior. As a result, a policy to increase information (reduce uncertainty) and to reduce transition costs can be used for a dual purpose. First, it would serve to redirect migratory flows towards areas which, from an efficiency or equity standpoint, would benefit from in-migration. Second, it would serve to increase the rate of out-migration both in over-congested areas and in those areas which do not offer economic potential. This policy can be implemented

by subsidizing migrants during the first moments of the move, and by establishing formal channels offering information about employment opportunities and wages in potential areas of destination. The distance variable, which has an elasticity of -.25, indicates that travel costs and information are relevant in the behavior of migrants. Thus, an appropriate policy would be to reduce direct travel costs and, again, to establish formal channels of information, as stated before. Although the value of the elasticity of distance is relatively small compared to the elasticity values of the other explanatory variables, when we compare its value with the elasticity value of earnings at destination (.73), we find that an increase in annual average per capita earnings of 10 percent or 2,437 pesetas at destination can apparently be offset by an increase of 165 kilometers in distance. In addition, we find that the expelling effect of earnings at origin (-.27) is approximately equivalent to the deterrent effect of distance (-.25). This comparison reaffirms the importance of uncertainty in migrant behavior, and it implies that an increase in information (reduction of uncertainty) will be an effective policy instrument for the regulation of migratory movements.

From the standpoint of benefits, we see that wages and employment opportunities are relevant instruments for the implementation of migration policies. As our results indicate, earnings and the relative sizes of labor markets explain migratory behavior. Thus, the appropriate policy would be to give incentives (tax re-

lief, easy credit) to industries which offer jobs in areas in which policy dictates a reduction of out-migration or an increase in in-migration, as well as to subsidize wages in these areas. For those areas in which policy dictates reduced population growth, the appropriate policy would be to establish disincentives (increased taxes to industry, credit restrictions).

In summary, policies for regulating migratory flows should be made selectively. First, in areas in which policy dictates an increase in in-migration or a reduction of out-migration, the incentives that can be established are: investment grants and tax exemptions for industries, investments tending towards the improvement of the infrastructure, housing policies, and wage subsidies. This policy will create job opportunities and will offer better wages and living conditions. Thus, it will tend to increase the rate of in-migration or forestall out-migration for these areas. Second, in overpopulated areas in which policy dictates a reduction in population growth by reducing in-migration to these areas and increasing out-migration from them, the following policy can be established: taxation policies to discourage new investments, and credit restrictions. Finally, in order to affect the rate of mobility, public policy can offer information about job opportunities and wages to potential migrants as well as to create programs to facilitate the move, such as reducing travel costs and providing grants to be used for lodging, food, etc., during the first and most difficult moments of the move. This pol-

icy would reduce information and uncertainty costs and would ameliorate displacement and transition costs. The implementation of all these policies could, in short, alter the rate of mobility and redirect migratory flows.

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